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ABSTRACT

This final report details the computer-based Performance-Related Enabling Skills Training (PREST) Project, designed to meet the United States Navy's need to develop an efficient and effective means of increasing the reading skills of Navy recruits with minimal loss of training time and minimal diversion of military personnel. The report is divided into several sections, with the first two describing the Navy's need for remedial reading instruction for its recruits and outlining the existing remedial reading program and its problems. The next two sections of the report give the step-by-step process of developing the PREST curriculum, and are followed by an evaluation and discussion of the project and recommendations for the future of the program. The major portion of the document consists of a series of appendixes that include recruit progress, study skills, and an attitude survey. (HTH)

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FINAL REPORT
for the

PERFORMANCE-RELATED ENABLING SKILLS TRAINING (PREST) PROJECT

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September 30, 1980

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Abstract

In today's post-draft era, more and more recruits are entering the military services without the reading skills needed to complete their basic training, and all indications are that even more individuals entering the service will need some kind of remedial reading training. At the same time, instructor costs are going up.

This project specifically addresses the Navy's need to develop an efficient and effective means of increasing the reading and study skills of Navy recruits with minimal loss of training time and minimal diversion of military personnel. To address this need, a computer-based reading and study skills curriculum was developed for Navy recruits who enter the service with less than a sixth-grade reading level and for recruits who demonstrate academic difficulty during recruit training. The curriculum covers those basic reading and study skills needed for the successful completion of the academic portion of recruit training. The content of all study skills materials and supplemental reading activities is taken from actual Navy recruit training manuals and lectures.

This curriculum was named PREST (Performance-Related Enabling Skills Training) in order to emphasize its focus on the development of Navy functional reading and study skills. The curriculum was computer-based in order to explore the use of computer technology as a means of providing a flexible and cost-effective system for delivery of quality reading instruction to large numbers of recruits. (Control Data Corporation's PLATO system was used for this purpose.)

The project was carried out by Research for Better Schools, Inc. (RBS) under contract number 400-79-0029 from the National Institute of Education at the request of and funded by the Department of the Navy, Chief of Naval Education and Training. Prepilot and pilot testing of the curriculum was carried out at the Recruit Training Center in Orlando, Florida between January and May 1980. Approximately 100 recruits were instructed via PREST.

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Section One: Introduction

In today's post-draft era, more and more recruits are entering the military services without the reading skills needed to complete their basic training, and all indications are that even more individuals entering the service will need some kind of remedial reading training. At the same time, instructor costs are going up.

The project described in this report specifically addresses the Navy's need to develop an efficient and effective means of increasing the reading skills of Navy recruits with minimal loss of training time and minimal diversion of military personnel. To address this need, a curriculum of job-related basic reading instruction for Navy recruits entering the service with less than a sixth-grade reading level was developed. This curriculum was named PREST (Performance-Related Enabling Skills Training) in order to emphasize its focus on the development of Navy functional reading and study skills. The curriculum was computer-based in order to explore the use of computer technology as a means of providing a flexible and cost-effective system for delivery of quality reading instruction to large numbers of recruits.

The project was carried out by Research for Better Schools, Inc. (RBS) under contract number 400-79-0029 from the National Institute of Education at the request of and funded by the Department of the Navy, Chief of Naval Education and Training. RBS is a private, nonprofit corporation established as an educational laboratory in 1966 under Title IV of the Elementary and Secondary Education Act. Since its establishment, RBS has been involved in helping a variety of agencies to find solutions to their education problems through needs assessment; design and development of curricula, instructional materials, and training programs; and direct provision of a variety of education services.

This report is a summary of activities April 6, 1979 to September 30, 1980 related to the accomplishment of this contract. One section of the report is devoted to each of the following topics: the present need for remedial reading instruction in the Navy, the existing remedial reading program, the PREST development activities, the PREST curriculum, the formative and summative evaluations, a discussion of additional factors influencing the project, and recommendations for future activities which will make maximal use of the accomplishments of this project.

Section Two: Present Need for Remedial Reading Instruction in the Navy

The need for remedial reading instruction in the Navy has been discussed and programs initiated periodically throughout this century. However, in recent years there has been increasing attention to this need. Attention has focused on two issues: the role of reading in the Navy and the increasing recruitment of young men and women who have low reading skills. This section discusses these two issues.

The Role of Reading in Navy Personnel Performance

To appreciate the need for literacy training in the Navy, it is important to understand the crucial role that reading ability plays in the performance and advancement of Navy personnel throughout their enlisted careers. In general,

> [a]vailable information demonstrates that low readers, when compared to the average military population (1) have higher discharge and attrition rates, (2) experience more difficulty in technical training, (3) perform less satisfactorily on the job, (4) and have less potential for career advancement. Such conditions are not only costly but inhibit effective use of manpower. (U.S. GAO, 1977, p. 7)

Eighty-four percent of all recruits discharged from the San Diego Naval Training Center between June 1974 and January 1975 read below the sixth-grade level (U.S. GAO, 1977, p. 7); a correlation has been found between reading ability and Class A School test performance (U.S. GAO, 1977 p. 9), especially in schools where training is less individualized (Aiken, Duffy, & Nugent, 1977, p. vii); Navy studies report that reading ability affects an individual's ability to "operate autonomously" on the job (U.S. GAO, 1977, p. 10) and that poor readers may be "a hazard to effective Navy operations" if they are required to use written materials in time of emergency (U.S. GAO, 1977, p. 2); "only 6.2 percent of the rating designated (or rated) men read below an eighth grade reading level, as compared to 33.8 percent of the nondesignated personnel" (Duffy & Nugent, 1978, p. viii); and poor readers are unlikely to hold jobs above the E-4 level (on a career scale ranging from E-1 to E-9) because of the reading requirements and written examinations required for advancement beyond that level (U.S. GAO, 1977, p. 10).

It is, of course, impossible to establish a direct causal relationship between success in reading and Navy job-related achievement, since reading ability is related to such factors as general intelligence, motivation, and self-discipline. However, researchers analyzing data on 23,000 recruits at the San Diego Naval Training Center between June 1974 and January 1975 found that "reading ability contributes significantly to the prediction of discharges during recruit training, independently of other variables" (U.S. GAO, 1977, p. 7).

The economic effect of losing recruits at this point is significant since the Navy expends an average of $1,881 for each recruit not completing basic training (U.S. GAO, 1977, p. 8). By comparison, however, it costs the Navy, on the average, only $864 per recruit (U.S. GAO, 1977, p. 13) to remediate and raise basic reading skills up to a sixth-grade reading level, the currently acceptable level for participation in recruit training. (See Section Three: The Existing Remedial Reading Program.) It is much more difficult to put a price tag on that loss which results from reduction in the candidate pool for higher ratings and the loss of effectiveness of personnel in their existing jobs because of inadequate reading skills; but this cost is clearly enormous.

Increasing Recruitment of Men and Women with Low Reading Skills

In the post-draft era the Navy has been enlisting increasing numbers of recruits who lack sufficient reading skills to enable them to complete basic training, let alone advance to higher ratings through completion of technical school courses and independent study programs. This situation is due to two general factors: a decrease in the reading skills of high school students nationally and a smaller total number of applicants, which has resulted in the acceptance of those with lower qualifications in order to meet enlistment quotas. The smaller pool of applicants reflects a general anti-military climate and a decrease in absolute numbers of individuals of enlistment age. Although the enlistment climate may improve, demographic predictions indicate a further shrinkage in the numbers of individuals in this age group will continue to the end of this century. Therefore, if the present Navy reading requirements are maintained, a large-scale, efficient, and effective remedial reading instruction program within the Navy will be required. Since any significant change in the present reading standards would require many years of work, millions of dollars, and overcoming considerable resistance within the military establishment to lowering of reading standards, it appears that such a program will be required.

Section Three: Existing Remedial Reading Program

Since 1943, the Navy has provided a number of systematic programs of reading instruction for recruits deficient in literacy skills needed for sucessful completion of training (Fletcher, 1977; Duffy, 1977; and Smith, 1980). These programs were usually developed in response to a manpower shortage and abandoned whenever manpower needs decreased.

The Navy's current program, referred to as the Academic Remedial Training program, or ART, evolved from a program begun in the 1960's in response to the manpower needs of the Vietnam conflict and the Department of Defense's commitment to accept and train "marginal personnel" in all three of its services (Fletcher, 1977, p. 22). This section provides an overview of the current ART.

Selection Process

Currently, the reading ability of Navy enlistees is not tested prior to their arrival at basic training. However, recruits are given a reading evaluation as a regular part of in-processing as soon as they reach the Recruit Training Command (RTC) to which they have been assigned. Evaluation is carried out by means of the Gates-MacGinitie Reading Test, Level D. Figure 1, Recruit selection for ART, displays this process. Those who score less than 6.0 Reading Grade Level (RGL) are retested Those who score 4.0 to 5.9 RGL on the retest are sent to the ART for remedial reading and study skills instruction. Those who score less than 4.0 RGL on the retest are sent to the Academic Review Board (ARB).

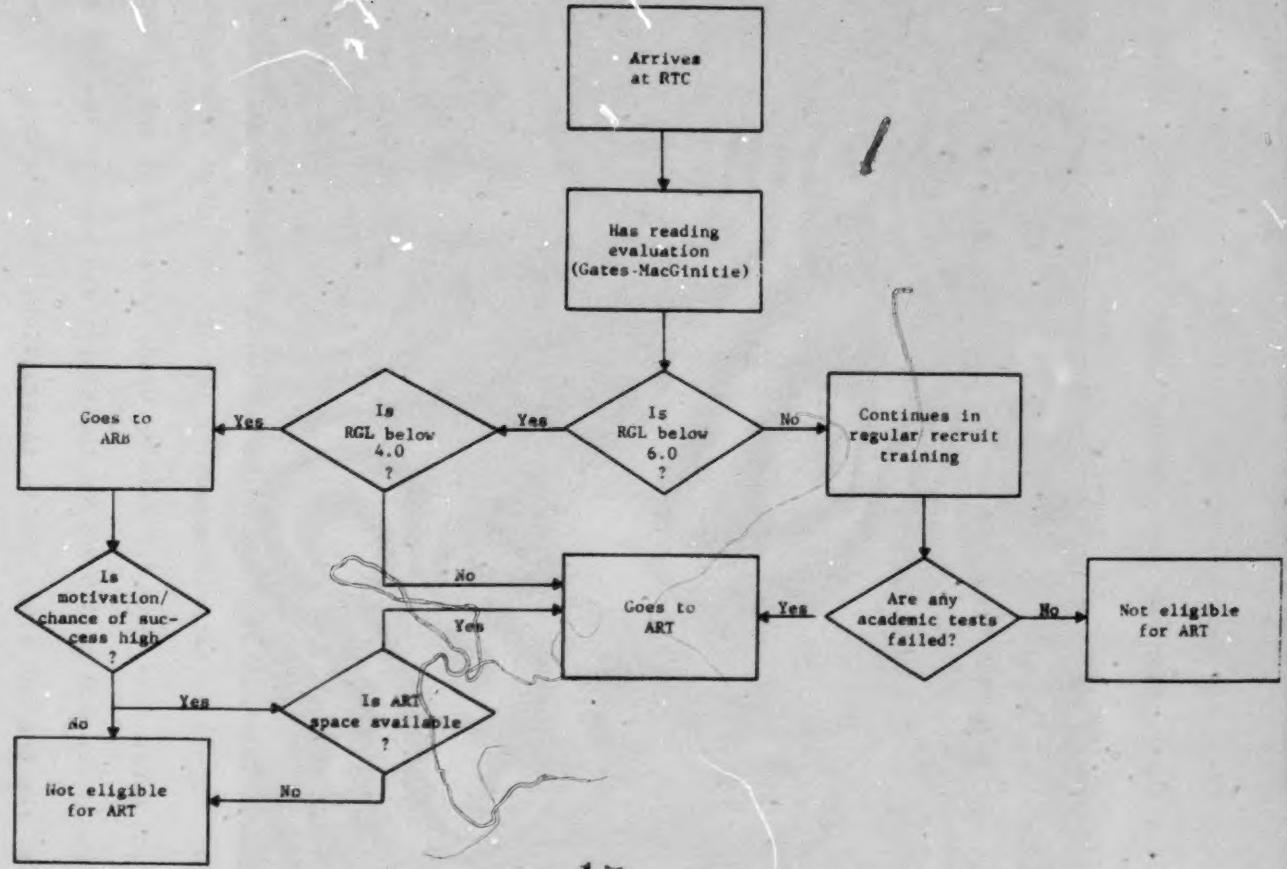
Arrives at RTC
Has reading evaluation (Gates-MacGinitie)
Is RGL below 6.0 ?
Yes
No
Continues in regular recruit training
Is RGL below 4.0 ?
Yes
Goes to ARB
No
Goes to ART
Yes
Are any academic tests failed?
Yes
No
Not eligible for ART
Is motivation/ chance of success high ?
Yes
No
Is ART space available ?
Yes
No
Not eligible for ART

Figure 1: Recruit selection for ART

The ARB may recommend dismissal from the Navy or, if the recruit displays high motivation and potential for reading improvement and if there is room in the remedial reading unit, the recruit may be referred to the ART. (During off-peak enlistment periods most recruits reading between 3.0 and 4.0 are accepted into the ART provided they appear to be motivated.) Those who score 6.0 or above continue with the regular recruit training program. The ARB may, however, refer individuals back to the ART at a later date if they fail any of the four academic tests which are given during recruit training.

Instructors

ART instructors are primarily Navy personnel, although some civilian instructors are used at RTC Orlando. Enlisted instructors are typically college graduates who have had some background in education before enlistment and who volunteer for this assignment at the end of their own recruit training programs. Their tasks include filling out individual assignment sheets, checking assignments completed, conducting small group instruction, and administering tests. Directly or indirectly, they also serve as role models, work on student motivation, and function as a primary source of information on Navy life for the recruits in their classes.

Skill Areas

The current ART curriculum is based on mastery of objectives in the areas of reading and study skills. Figure 2, Current ART skill areas, lists these areas.

Reading Skills

- Phonetic Analysis
  - Consonant Sounds
    - Single Consonants
    - Consonant Clusters
    - Digraphs
  - Vowel Sounds
    - Short Vowels
    - Long Vowels
    - Diphthongs
- Structural Analysis
  - Word Division
    - Compounds
    - Affixes
    - Open and Closed Syllables
  - Blending
    - Affixes
    - Syllables
- Auditory Vocabulary
  - Reading
  - Mathematics and Science
  - Social Studies
- Reading Comprehension
  - Literal
  - Inferential
- Reading Rate

Study Skills

- SQ3R (Survey, Question, Read, Recite, Review)
  - Reading
  - Underlining and Outlining
  - Skimming
  - Scanning
- Notetaking and Testtaking
  - Outlining Lecture
  - Studying for and Taking Tests

Figure 2: Current ART skill areas

Instructional Procedures

Upon entrance into the ART, recruits are given the Stanford Diagnostic Reading Test (SDRT), Brown Level. The areas evaluated by this test correspond to the reading skill areas of the ART since these areas "were derived from the objectives and content of the SDRT, Brown Level" (Chief of Naval Technical Training, 1979, p. 7).

Results are analyzed by feeding the SDRT answer sheets through an OpSCAN device which identifies all correct and incorrect answers. These results are then put into the general Navy training CMI system via an input/output device linked to a mainframe computer in Millington, Tennessee. The Millington computer responds with an individualized prescription which is printed on the same input/output device.

The instructor uses this prescription to fill out an assignment sheet by selecting materials from lists corresponding to each possible objective. The recruit attends some small group instruction on assigned objectives but primarily works alone, completing all activities listed on his/her assignment sheet.

Materials Used

Assigned materials are primarily commercial materials commonly found in the traditional school classroom or remediation center, for example, a large collection of SRA kits and the Boning Specific Skills and Multiple Skills Series. Study skills materials include Nila Banton Smith's Be a Better Reader, SRA's How to Study, and many other similar materials, including commercial cassette tapes for instruction in listening skills. In addition, the existing ART curriculum has recently incorporated a Navy job-related remedial reading workbook, Improving Your Navy Reading Skills, to supplement their materials offering (Curry & Kincaid, 1979).

Criteria for Completion

Recruits must display a specified minimum competency on a mastery test for each skill area originally prescribed, based on SDRT data.

Recruits attend classes from 0830 to 1100 and from 1230 to 1500, five days a week. Average completion time for recruits entering the program at a 4.0 to 5.9 RGL, as measured by the Gates-MacGinitie, is between three and five weeks.

Problem

The existing remedial reading curriculum in the Academic Remedial Training program has been effective, but it is becoming too costly in terms of the student/instructor ratio which it requires because of the greater numbers of recruits to be accommodated and the increasing instructor costs. Since computer-based instruction, developed and tested since the early 1960s, seemed to offer a cost-effective alternative to meet the Navy's recruit reading instruction needs, RBS was asked to develop and demonstrate a computer-based curriculum for the ART. The specific steps followed in this development and demonstration effort are described in the following section.

Section Four: Summary of Project Activities

This section of the report details the step-by-step process by which the resulting curriculum was developed, tried out, revised, and tested. Figure 3, PREST Schedule, displays the schedule for these activities as proposed in the original project plan. All activities were carried out as planned, and the original timeline was maintained throughout the course of the project. The following narrative discusses each item on the schedule.

Study of the Navy Context

In order to design the PREST curriculum, RBS first sought to develop familiarity with the Navy context; with the Navy training system, especially as it relates to reading requirements and methods of instructional delivery; and with past and present reading instruction programs provided to Navy recruits. This portion of the project was carried out primarily during the first four months of the contract and centered on four types of activities: obtaining relevant documents and information, gathering information on implementation of the present remedial reading program, analyzing existing and projected recruit job-related reading needs, and determining philosophical and physical parameters.

Obtaining relevant materials (documents/information). Documents obtained included specifications for Navy instructional systems development; the most current editions of the manuals which recruits must read as part of their basic training, The Bluejackets' Manual and Basic Military Requirements; selected rate training manuals, such as Seaman,

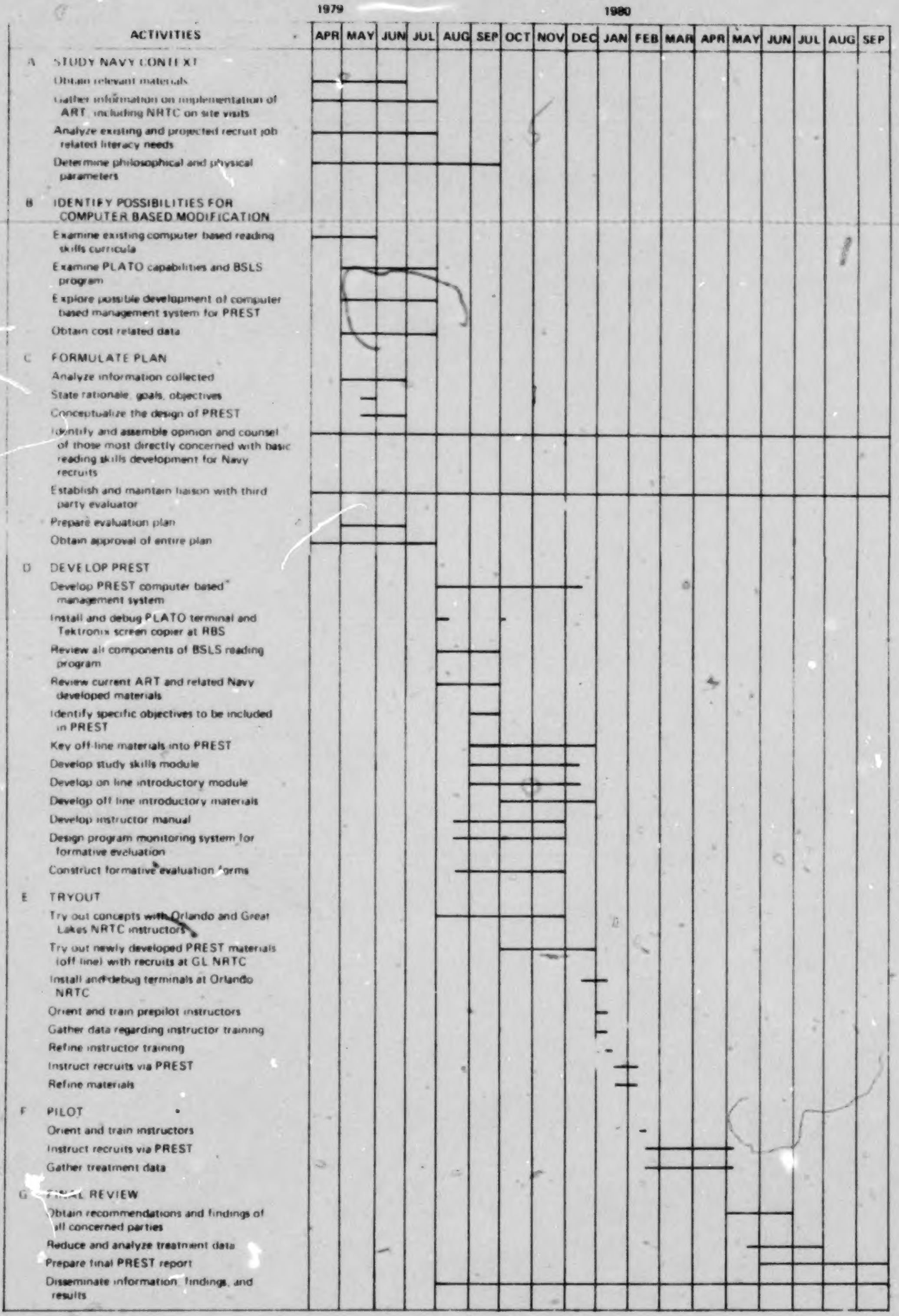

Figure 3: PREST Schedule

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Airman, and Fireman; materials now in use in the ART and related reading materials currently under development; relevant research reports from the United States General Accounting Office (GAO) in Washington, the Human Resources Research Organization (HumRRO) and the Army Research Institute (ARI) in Alexandria, Virginia, the Training Analysis and Evaluation Group (TAEG) in Orlando, the Navy Personnel Research and Development Center (NPRDC) in San Diego, the Chief of Naval Technical Training (CNTECHTRA) in Memphis, and CNET in Pensacola; and from research in related areas. (See Appendix A, Bibliography.)

Information was also gathered from interviews with senior officers, civilian employees, and instructors and from direct observation of instruction and examination of instructional management systems and materials during site visits to Recruit Training Centers (RTCs) and Apprentice Training and "A" Schools at all three Navy Training Centers at which recruits are trained (Great Lakes, Orlando, and San Diego).

Liaisons for exchange of information regarding the development of PREST and new developments in relevant aspects of Navy training were also established with CNTECHTRA, TAEG, and NPRDC. Site visits to both CNET and CNTECHTRA headquarters as well as attendance at an Army Basic Skills Education Program (BSEP) Symposium and the annual meeting of the American Educational Research Association's Special Interest Group: Military Education and Training helped to establish understanding of current and projected trends in reading instruction in the Navy and in the military in general.

Collection of information on implementation of the present ART. The current ART was studied in depth through a survey of procedures and materials used, through on-site visits to the three RTCs, and through informal interviews with personnel involved in ART development and implementation.

Analysis of existing and projected recruit job-related literacy needs. Existing and projected recruit job-related reading needs were analyzed through study of relevant research reports (see above) and through conversations with Naval personnel most cognizant of this area. Additional information regarding adult literacy training in other environments (e.g., adult learning centers, CETA programs, and correctional institutions) was analyzed and adult reading instruction materials at the Reader Development Center of the Free Library of Philadelphia, the most comprehensive such collection in the United States, were examined.

Determination of philosophical and physical parameters. Parameters were established through all of the above activities, especially through the on-site visits, during which the physical environments and time constraints of recruit training were examined; information regarding billetting and personnel movement were obtained; and project personnel were able to spend time in informal discussions with recruits and the personnel involved with their training. Financial restrictions and considerations were examined at this time.

Identification of Possibilities for Computer-Based Modification

The possibility of developing PREST as a modification of an existing computer-based reading program was explored through examination of existing computer-based reading programs, examination of the capabilities of Control Data Corporation's (CDC's) PLATO® system and the new adult reading curriculum developed for that system, consideration of possible options for a computer-based management system for PREST, and gathering of cost-related information.

Examination of existing computer-based reading curricula. RBS examined existing computer-based reading curricula, such as those marketed by the Hazeltine Company (TICCIT) and Computer Curriculum Corporation (CCC), and computer-based reading programs under development, for example, the reading comprehension program being developed for the PLATO system at the University of Illinois by Martin Siegel. RBS also talked with major commercial publishers of reading materials to discuss their current and projected plans for developing computer-based reading programs and with major users of computer-based reading programs, for example, the Texas Education Service Center, Region IV(Houston), to discuss their experiences with and obtain their judgments on existing computer-based reading programs. This effort revealed that only one comprehensive computer-based reading program for adults existed at the time of this investigation: the reading component of CDC's Basic Skills Learning System (BSLS).

Examination of PLATO capabilities and the BSLS reading curriculum. The BSLS reading curriculum and the capabilities of the PLATO system for its delivery were extensively examined to determine its compatibility with the existing ART program and to determine the likelihood of its being able to deliver an instructional program that would meet the Navy's recruit reading instruction needs. This process included observation of the curriculum in use at CDC's Baltimore Adult Learning Center and at the Fort Meade Army Base (where both BSLS math and reading were being used), evaluation of research on the effectiveness of BSLS in use with adults, hands-on use of the system by project staff, and attendance at a CDC Executive Seminar on Computer-Based Education and Training. Discussions were held with CDC personnel regarding the graphics, branching, and recordkeeping capabilities of the PLATO V system and the feasibility of redesign of parts of the BSLS reading curriculum to meet the specific job-related reading needs of Navy recruits.

Exploration of developing a computer-based management system. RBS discussed with CDC the possibility of developing a computer-based management system for PREST which would guide recruits through an introductory on-line module, instruction via the on-line BSLS reading component and specially developed off-line Navy job-related instructional materials, and an entire study skills module consisting of both on-line and off-line materials.

Gathering of cost-related data. Cost data were obtained for the following: (1) installation and use of a PLATO V terminal at RBS for the purpose of review of the total BSLS reading program, familiarization with instructional techniques developed for other PLATO programs, review of on-line PREST materials during the development phase, inter-terminal communication with CDC personnel, and monitoring of recruit use of PREST during the prepilot and pilot stages; (2) CDC technical consulation for design of the PREST computer-management system; (3) system review and programming of original on-line materials (an introductory module and six study skill lessons, each consisting of a tutorial, drill and practice, and testing); (4) redesign of the existing BSLS router in order to create a unique router for PREST; (5) installation and use of 12 PLATO V terminals at the test site; and (6) author and student group access to the reading portion of BSLS and specific CDC-developed games (for use in introducing recruits to the PLATO terminal) during the development and evaluation portions of the project respectively.

The cost of rental of a Tektronix screen copier, (Model 4625 option #4) for making hard copy of on-line materials was also determined at this time.

Formulation of Plan

Formulation of a plan for the development of PREST was accomplished through analysis of information collected; statement of rationale, goals, and objectives; conceptualization of the design for PREST; consultation with those most directly concerned with reading instruction for Navy recruits; liaison with the third party evaluator; and, throughout all stages of plan preparation, review by both the National Institute of Education (NIE) and Chief of Naval Education Training (CNET) project officers.

Analysis of information. All information obtained during study of the Navy context and identification of possibilities for computer-based modification was analyzed for the purpose of conceptualizing PREST.

Statement of rationale, goal, and objectives. Based on the above, the rationale for PREST was developed. In condensed form, the rationale was stated as follows:

> The Navy needs a cost-effective method to upgrade the basic reading and study skills of recruits who enter the service reading at less than a sixth-grade level of competency. The current ART program is effective, but it is becoming too costly in terms of the student/instructor ratio which it requires when one considers the real possibility of increased instructor costs in the future. Computer-based instruction, developed and tested since the early 1960s, may offer a cost-effective alternative to meet the Navy's recruit reading instruction needs.
>
> Therefore, RBS plans to demonstrate a cost-effective, computer-based, Navy-related basic reading skills program for Navy recruits who are eligible for the ART program. This program will preserve the primary, proven-effective components of the present ART curriculum; i.e., instruction will be individualized, and the specific content of each recruit's program will be determined by diagnosis and prescription. (Research for Better Schools, 1979, p. 15)

The goal of PREST, as established through consultation with both the NIE and CNET project officers, was to demonstrate a cost-effective, computer-based, Navy job-related basic reading skills curriculum for Navy recruits who read between 4.0 and 6.0 RGL and for whom English is the primary language. The specific objectives of the project were:

- to provide Navy recruits with basic reading and study skills necessary for their successful completion of recruit training

- to provide Navy recruits with a Navy-related curriculum that will increase the probability of their successful completion of recruit training
- to enable Navy recruits reading below 6.0 RGL to achieve at least a 6.0 RGL on the Gates-MacGinitie Reading Test, Level D

Conceptualization of the design for PREST. Based on the information analysis, the above stated goal and objectives, and extensive corporate experience in the development of various curricular and instructional systems, RBS developed the design for the PREST curriculum. (See Section Five: The PREST Curriculum.)

Identification and assemblage of counsel of those most directly concerned with the reading instruction of Navy recruits. Throughout this phase RBS identified and assembled the opinion and counsel of those most directly concerned with the job-related literacy training needs of Navy recruits. As part of this activity, a PREST Coordinating Committee was established. The committee was composed of: (Chair) Project Officer for Contracting Agency, The National Institute of Education (Ronald B. Bucknam); Project Director for the Contractor, Research for Better Schools, Inc. (Joanne B. Stolte); CNET Project Officer (CDR C. W. Corkins, Jr., USN); Point of Contact for CNTECHTRA (Norman J. Kerr); and the Evaluator for Third Party Evaluation, NPRDC (Robert Wisher). Both formal and informal contacts were maintained with the committee members and with others directly concerned throughout the conduct of the project.

Establishment and maintenance of liaison with third party evaluator. NPRDC was contracted by CNET to serve as third party evaluator for the project. Communication between RBS and the third party evaluator was established at the outset of the project and regular communication, cooperation, and coordination of efforts were maintained throughout the period of the contract. This communication included in-depth discussion of the evaluation plans, definition of roles, coordination of efforts, and exchange of information, recommendations, and ideas.

Preparation of evaluation plan. The evaluation plan was developed. The entire curriculum would be evaluated in three stages: a tryout (for evaluation of concepts and preliminary evaluation of materials), a prepilot (for formative evaluation), and a pilot (for summative evaluation). According to this plan, concepts for possible inclusion in PREST would be discussed with instructors at both Great Lakes and Orlando RTCs and all materials especially developed for PREST would be tried out, in paper-and-pencil form, with recruits at RTC Great Lakes and reviewed for accuracy of Navy technical information by Basic Military Orientation instructors at RTC Great Lakes.

RTC Orlando was chosen as the site of both the prepilot and pilot. (RTC San Diego, originally targeted as the test site, was not used for this purpose because the majority of recruits in the ART in San Diego at that time were Philippine nationals who spoke Tagali as their primary language.) Usage of PREST during the prepilot in Orlando would be observed directly and would be monitored via the PLATO terminal at RBS. During the pilot, RBS staff would monitor PREST usage in a hands-off mode via the RBS terminal in Philadelphia. The summative evaluation plan would be developed by NPRDC with the consultation and cooperation of RBS evaluation staff.

Approval of the entire plan. The goal and objectives, a schedule, an outline of the plan, and a detailed outline of chapter one of the plan were prepared and reviewed by both the NIE and CNET project officers during a meeting in Pensacola in mid-May of 1979. Revisions were made as requested. The workscope, the schedule, and a detailed outline of chapter two of the plan were reviewed by the project officers meeting in Washington in mid-June. The final plan and budget for the project were submitted to NIE in July and approved.

Development of PREST

Actual curriculum development took place between the time the plan was accepted (late August, 1979) and January 1 of 1980. This process involved development of the computer-based management system, installation of the PLATO terminal and screen copier at RBS, careful review of all BSLS reading components and the curriculum and materials presently used in the ART remedial reading program, identification of specific instructional objectives for both the reading and study skill portions of PREST, selection of off-line materials to be included, development of both online and off-line materials, development of an instructor manual and instructor training materials, design of formative evaluation procedures, and construction of formative evaluation forms.

Development of the computer-based management system. RBS staff met with the CDC technical developer assigned to this project to draw up specifications for the PREST computer-based management system. Specifications were developed through exploration of the capabilities of the PLATO

Learning Management System, (within which PREST would function) as they relate to the design specifications and financial restraints of the project in order to come up with an optimal, achievable management system for directing ART-enrolled recruits through the diagnosis/prescription, instruction, evaluation, and other on-line aspects of PREST. CDC subsequently designed and developed the necessary software by altering the existing BSLS router.

Installation and debugging of the PLATO terminal and screen copier at RBS. The PLATO terminal required by the RBS staff for this project arrived August 9 and was on line August 21. Unfortunately, a defective panel within the terminal prevented the CDC customer engineers from getting the terminal on line more quickly. Subsequently, a CDC trainer spent one day at RBS instructing staff in the author-mode use of the terminal, which includes the capabilities of account management and instructor, analyst, and student use. This trainer spent one additional day at RBS to familiarize project staff with instructor-mode use of the PLATO terminal and continued to be available and extremely helpful to staff via terminal communications and by phone throughout the conduct of the project.

In October, when newly developed materials began to be put on line, a Tektronix screen copier (4632 with option #4) was installed so that project staff could make hard copy of any BSLS displays which were needed for further discussion, hard copy of newly developed on-line materials for use in review of CDC's programming efforts, a permanent record of communications via the terminal, and hard copy of data on recruit usage of PREST during the prepilot and pilot.

Review of all components of the BSLS reading program. As soon as this PLATO terminal was in operation, RBS began a careful review and analysis of all existing on-line components of the BSLS reading program, that is, the introduction to PLATO and BSLS and all five BSLS reading instruction modules. Specific reading skill objectives and the manner in which they were defined and presented were studied. From this careful examination, RBS gained familiarity with all BSLS program materials and was able to determine how best to utilize these materials within PREST. Previously developed lessons and games which introduce students to PLATO were also reviewed via the terminal.

Review of ART and related Navy-developed materials. Concurrent with analysis of the BSLS reading program, RBS carried out a similar review and analysis of the current ART commercial materials and other Navy-related reading instruction materials that have been developed in the past and are being developed now, e.g., Improving Your Navy Reading Skills, in order to determine which of the content and materials in the present ART curriculum should be utilized within PREST.

Identification of specific objectives to be included. From review of the BSLS and Navy reading curricula/materials and in consultation with appropriate Navy personnel, RBS identified the specific objectives to be included in the reading portion of PREST in order to develop a curriculum which would be functionally related to the reading needs of Navy recruits during their recruit training period. Current research findings and developments in the field of study skills were reviewed and evaluated in the light of the study skill demands of recruit training to determine which specific study skill objectives should be established and what instructional approach should be used. The "mapping" approach developed by Thomas H. Anderson[1] of the University of Illinois was selected to provide theoretical guidance in the development of the study skills segment.

Keying of off-line materials into PREST. RBS then re-examined all BSLS off-line, ART, and other Navy-related reading instruction materials which were directed toward instruction of those objectives to be included in PREST. Relevant materials which were most pertinent to the objectives, most effective in their instructional aspects, and/or most likely to build the recruit's knowledge of Navy job-related vocabulary and information were selected for inclusion in the off-line component. All BSLS off-line materials which accompany those sections of the BSLS reading component dealing with objectives to be included in PREST were accepted for inclusion in the PREST curriculum. From the materials in the existing ART, the following were selected: Improving Your Navy Reading Skills, The Bluejackets' Manual, Basic Military Requirements, and How to Study.

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[1] This approach is extensively described in T. H. Anderson et al. Techniques for studying textbook materials in preparation for taking an examination. Urbana, Ill.: University of Illinois. January, 1979. (Unpublished)

One commercially available book, not currently used in the ART, was identified for inclusion, The Language of the Navy in English. (See Appendix A, Bibliography, for publisher information.)

Approximately fifty pages of practice materials were developed to provide extra practice in key reading skill areas of the curriculum. All instructional items developed for these materials contained Navy-specific vocabulary based on the "Glossary of Frequently Used Naval Terms" in Improving Your Navy Reading Skills, and reading selections were based on information from The Bluejackets' Manual, Basic Military Requirements, the Instructor's Guides for Basic Military Orientation, and various rate training manuals. (See Appendix B, Usage of Off-Line Materials, for further information as to how these materials were used within the PREST curriculum.)

Development of study skills module. Six study skill lessons were developed. Each consisted of on-line instruction and drill-and-practice activities; off-line application activities with actual recruit training reading materials and, in some cases, small group instruction; and on-line evaluation of mastery. For ease in management, a progress chart was developed for use by each recruit to provide information on what has been accomplished and which activity should be done next. (See Appendix C, Recruit Progress: Study Skill Program)

On-line portions of these lessons had to be developed in conformity with specifications of the CDC driver which would run the lessons on line. The tutorials were developed to be run on CDC's new standard driver. This driver had just been developed by CDC for use with CAI components within the PLATO system. It allows for extensive branching and variable response feedback and was, therefore, a very useful vehicle for the tutorial components of the PREST study skill strand. This driver did, however, prohibit the use of any timed elements. The drill-and-practice and test items were developed for use on the existing BSLS test router. This router was extremely limiting in format and, because of the limitations on what could be tested, it forced revision and limitation of skills which could be taught during the tutorial (since skills tested must match skills taught). This dilemna was mitigated somewhat by the development of some off-line testing; however, off-line testing was kept at a minimum to prevent an undue burden being placed on the instructor, which would tend to decrease program effectiveness and, possibly, force reduction in the instructor-student ratio.

A total of 288 drill-and-practice and test-item displays, 48 per lesson, were developed. Each item was carefully reviewed prior to programming. Adequacy of item construction was reviewed by RBS evaluation staff and accuracy of content was reviewed by Basic Military Orientation staff at RTC Great Lakes. Tryout in paper-and-pencil form with Great Lakes recruits provided data for item analysis. On the basis of the above, items were revised and sent to CDC for programming. RBS conducted a final on-line review to check for accuracy of programming and proper functioning of the driver.

Development of the on-line introductory module. An on-line introductory module was developed by combining three existing CDC lessons and one new lesson developed specifically for PREST. The existing CDC lessons used were an introduction to the PLATO terminal and two on-line games which are designed to make the learner familiar and comfortable with the operation of the PLATO terminal, especially in terms of the "touch-screen" response mode, since this mode is used extensively in PREST. The new lesson developed by RBS was motivational in nature and designed to enable the recruit learner to understand the importance of reading skills in the recruit training program and the role of PREST in enabling the recruit to obtain those skills. This lesson was programmed and all elements of the introductory module were set into the new PREST driver, along with the reading component of BSLS and all on-line elements of the study skills module. Finally, an elegant Navy emblem was programmed for the opening display of the PREST curriculum and other Navy-related graphic elements were added to enhance the appearance of the materials and to provide motivation. (See Appendix D, Navy Emblem and Navy-Related Graphic Elements.)

Development of Instructor's Manual. Preliminary development of the PREST Instructor's Manual began at this time. This manual, which was designed to provide PREST instructors with information on the organizational structure of PREST and the role and responsibilities of the PREST instructor, continued to be a working document throughout the tryout period. It was changed to meet the expressed and observed needs of the instructors and to reflect changes in the curriculum and management system as they evolved during tryout. The document was finalized and delivered to the PREST instructors at the beginning of the pilot stage.

Development of off-line introductory materials. A preliminary packet of materials for recruits was developed. This packet was revised during tryout. Due to the lack of storage space in the barracks, the materials given to recruits during the pilot were limited to a bluebook, for notetaking; a Progress Chart, for recording progress during the reading component; and a copy of Improving Your Navy Reading Skills, for independent study in the barracks. (This book was not to be written in and was to be returned upon completion of PREST.)

Designing of program monitoring system for formative evaluation. A program monitoring system, for the purpose of formative evaluation, was designed for use during the prepilot to enable those persons involved in the development of PREST to observe student and instructor use of the curriculum, identify and record problems, identify possible solutions, select and effect a specific solution, and then implement and observe the results of this treatment.

Design of monitoring system for formative evaluation. The on-line BSLS reading materials had undergone extensive review and refinement. Therefore, the newly developed materials were the focus of the formative evaluation.

Direct observation of the prepilot test implementation was the major source of descriptive, formative information. Students and instructors were informally interviewed daily.

Construction of formative evaluation forms. A loose-leaf notebook was prepared containing a copy of each off-line lesson. Any problems identified were noted and/or suggested revisions were written directly on these sheets by RBS staff and/or PREST instructors.

Tryout

The tryout consisted of two phases. The first was the tryout of newly developed PREST materials at RTC Great Lakes. The second was the prepilot of the entire curriculum at RTC Orlando. The prepilot involved installation of computer terminals, training of instructors, gathering of data regarding this training, refinement of training procedures, instruction of recruits, and refinement of instruction.

Tryout of concepts with ART instructors. During trips to RTC Great Lakes in July and November and to RTC Orlando in August, RBS staff met both formally and informally with ART instructors and supervising officers to discuss recruit motivation; the existing ART program; specific recruit reading and study skill needs; instructor ART concerns; constraints of scheduling, billetting, and material acquisition within the ART program; and the preliminary design of PREST as they relate to all of the above. On the basis of these discussions and through written and telephone correspondence throughout the development period, the design of PREST was further refined.

Tryout of newly developed PREST materials. In late November, RBS staff traveled to RTC Great Lakes to try out Navy-related drill-and-practice and test items which had been specially developed for the new PREST study skills module. All 288 of these items were administered, in paper-and-pencil mode during two sessions, to those recruits who were assigned to the study skills segment of the ART at that time (approximately 20 recruits). All 288 were also reviewed by the RTC Great Lakes Basic Military Orientation instructors. The instructors were asked to note any inaccuracies in terms of Navy-related information and to note which items pertained to very important or unimportant topics. Data obtained from the recruit responses and instructor comments were used for item revision. A few items were eliminated altogether and replaced by items dealing with topics which were most important to Basic Military Orientation.

Installation and debugging of terminals at RTC Orlando. Twelve PLATO V terminals were delivered to RTC Orlando in mid-December. These terminals were CDC's new IST2 model rather than the IST1 which had been expected. The new terminals had the advantages of being more compact than their predecessors and allowing for the downloading of some software which considerably speeded up the reaction time of most activities. RBS staff arrived in Orlando the first week in January to oversee installation of the terminals. The entire system was debugged and the necessary PLATO on-line files were set up.

Orientation and training of prepilot instructors. Two instructors, both military personnel, were assigned to the PREST prepilot. One was a Petty Officer Second Class, a college graduate (physical education major), with three years experience as an ART instructor. The other, a Seaman, had completed three years of college (journalism and fine arts major) and had taught in the ART program only a few months. These individuals were chosen in order to evaluate the PREST instructor training package and usage of the curriculum with both ART experienced and inexperienced instructors.

The instructors were oriented to the components and principles of the PREST curriculum and given hands-on experience working through the on-line curriculum and performing primary on-line instructor tasks through a problem-solving approach. After two days of this orientation, instructors were given a procedure to follow for introducing recruits to the curriculum, and the first recruit was assigned to PREST. Instructor training was continued throughout most of the next four weeks although instructors were fairly self-sufficient after about one week training.

Gathering of data regarding instructor training. During the training period notes were made regarding problem areas for the instructors and various charts and explanations were devised and tried out to identify those that were most successful. RBS staff remained on site in Orlando to observe the instructors as they continued to work with students and, again, any problem areas were noted.

Refinement of instructor training. Instructor training was refined on the basis of instructor questions, observation of instructor performance, and instructor suggestions.

Instruction of recruits via PREST. Students were added to the prepilot group gradually as instructors became more familiar with PREST and felt able to handle more recruits. A total of 22 recruits were enrolled in PREST during the prepilot. Of that number, 15 completed the program. The number of recruits enrolled in the prepilot could have been comfortably doubled, but there were so few recruits referred to the ART at that time that additional subjects were not available. As a result, no more than 12 recruits were enrolled in PREST at any one time during the prepilot. Since PREST was designed for use by one instructor working with 24 recruits and 12 terminals, it was impossible to adequately test the management system during the prepilot. However, use of the system with a ratio of two recruits per terminal was tried periodically by allowing the 12 recruits to access only six of the 12 terminals.

Throughout the prepilot project staff collected data on recruit online usage of PREST. This data was received via the PLATO terminal at RBS and hard copy was made of the following data for each recruit: total time spent on-line, total time in each of six strands, total time in each activity of each strand (inventory, pretest, posttest, tutorial, review, and drill and practice), method of passing each cluster (objective), day and time of first sign-on, and day and time of last sign-off. In addition, an audit-trail of minute-by-minute activities was maintained to some degree on all recruits. Complete data was collected on a sample of the group.

Refinement of materials. Materials and procedures were refined on the basis of observation and analysis of recruit usage during the prepilot. (For a discussion of the formative evaluation and specific changes that were made see Section Six: Evaluation.)

Pilot

The pilot phase of the project was comprised of the orientation and training of instructors, instruction of recruits via PREST, and the gathering of treatment data for the purpose of summative evaluation.

Orientation and training of instructors. The prepilot PREST instructors continued as the instructors during the pilot stage; therefore, no instructor training was necessary for this phase of the project. RBS had intended to use different instructors for the pilot, but it was decided to continue with the original instructors for two reasons. First, it had been already agreed that only military instructors were to be used in the testing of PREST, and only one other military instructor was available (all other Orlando ART instructors being civilians assigned by the Orange County School Board). Second, it would be unwise to use the former PREST instructors as control group instructors since they would have already been influenced by their training for PREST.

Instruction of recruits via PREST. All recruits entering PREST on or after February 21 became part of the pilot cohort. Recruits entering before that date were considered part of the prepilot. As a result, some of the prepilot recruits were still using PREST after the pilot had begun. Their treatment was essentially the same except that all recruits in the pilot had undergone the additional testing procedures required for the summative evaluation. (See Section Six: Evaluation.)

In order to enroll a sufficient number of recruits in PREST so that the pilot group would eventually include 80 recruits before its end in mid-May, all recruits entering the ART in Orlando who were diagnosed as reading between 4.0 and 6.0 RGL and for whom English was the primary language were enrolled in the PREST group, provided that PREST enrollment at that time was less than 24 (the maximum allowable class size for the pilot phase). This procedure was followed throughout most of the pilot, although it left the rest of the ART instructors with some near-empty classrooms on several occasions.

Throughout this period RBS collected data on recruit on-line usage of PREST. This data was collected via the PLATO terminal at RBS. Types of data collected were the same as during the prepilot. (See page 34 for description of types of data collected and Appendix E, Examples of Student Data Collected On-Line)

Gathering of treatment data. In addition to the data gathered by the third party evaluator (See Section Six: Evaluation.) RBS gathered data on the on-line activities of the recruits working in PREST. This data was received via the PLATO terminal at RBS and hard copy was made of the following data for each recruit: total time spent on-line, total time in each of six strands, total time in each activity of each strand (inventory, pretest, posttest, tutorial, review, and drill and practice), method of passing each cluster (objective), day and time of first sign-on, and day and time of last sign-off. In addition, an audit-trail of minute-by-minute activities was maintained to some degree on all recruits. Complete data is available on a sample of the group. (See Appendix E, Examples of Student Data Collected On-Line.)

Low ART enrollment continued to create a problem in obtaining the originally planned sample size of 80 recruits for the pilot group. Following an official (CNET) recommendation to the Technical Training Officer at each RTC to admit into the ART program recruits reading higher than the original 6.0 RGL cut-off level, recruits reading up to a 6.5 RGL were enrolled in PREST during the third week of March, and at the end of the month the entrance criterion was raised to 6.7 RGL. Since recent figures indicated that 6.5% of all entering Navy recruits read at 6.5 RGL or below (compared to 3.5% reading at below 6.0 RGL), it was hoped that by raising the admission level to 6.5 the pool of pilot subjects would almost double. This hope seemed to be borne out. However, since the PREST curriculum had not been designed for use with individuals reading above 6.0, recruits reading above this level were admitted in order to evaluate use of the PREST management system with 24 recruits per instructor, but achievement data on these individuals was not to be included in the evaluation of PREST.

The target class size of 24 recruits per one instructor using 12 terminals was attained and both instructors participating in the pilot reported that the PREST management system supported this configuration.

The pilot stage of PREST ended on May 16. Although the pilot ended on this date, CDC left the 12 PLATO terminals in place in Orlando while the Navy considered three separate options for keeping the terminals in operation while waiting for the final project report. Orlando personnel involved with the PREST project enthusiastically supported this plan. In the meantime, the two PREST instructors were reassigned to study skill instruction and test administration. However, the terminals were not further utilized, so they were removed by CDC at the end of June.

Final Review

The final review was conducted through gathering of the recommendations and findings of all concerned parties, the preparation of this final report, and the dissemination of information, findings, and results related to the PREST project.

Gathering of recommendations and findings of all concerned parties. In order to prepare its final review of the PREST development activity, RBS obtained recommendations from and assembled the findings of all concerned parties. These included members of Coordinating Committee, RBS staff, the CDC Technical Developer, and Navy personnel who had participated in prepilot and pilot.

Reduction and analysis of treatment data. All treatment data incorporated into the summative evaluation were reduced and analyzed by NPRDC with the exception of data obtained via the Navy Recruit Attitude Survey, which were reduced and analyzed by RBS. (See Section Six: Evaluation.)

Preparation of final PREST report. This final report was prepared for delivery to both NIE and CNET as per the original schedule.

Dissemination of information, findings, and results. Dissemination of information on, findings, and results of the PREST development activity was targeted at both military and related professional audiences.

Information on PREST was presented in a project report to the 1980 annual meeting of the Association for Development of Computer-based Instruction ("Performance-Related Enabling Skills Training: PREST" by Shirley C. Smith) and to the 1980 annual meeting of the American Educational Research Association ("A Computer-Based Approach to Functional Literacy Training for Recruits: PREST" by Joanne B. Stolte and Shirley C. Smith). Also an article on PREST was prepared for the October 1980 issue of CAMPUS, the Navy Education and Training Monthly ("Learning Is Fun with PREST" by Shirley C. Smith).

A series of demonstrations of PREST were conducted in Orlando during the week of May 12-16. A total of 36 persons attended those presentations, including officers of the Army, the Navy, and the Marine Corps; civilian military employees; and representatives of Control Data Corporation (CDC). (See Appendix F, PREST Demonstration.)

Furthermore, project staff increased the visibility of PREST through discussion of it with members of the military, computer instruction, reading, and adult basic education professional community at professional meetings (the Army's Basic Skills Education Program Symposium and annual meetings of the Society of Applied Learning Technologies, the Association for the Development of Computer-based Instruction, the American Educational Research Association, and the International Reading Association) and through informal contacts throughout the year.

With the approval of both NIE and CNET, this report will also be circulated to interested parties and professional articles will be written based on data obtained during the course of the project.

Section Five: The PREST Curriculum

This section provides an overview of the PREST curriculum and contains a description of its main components and management system. A discussion of the principal advantages of this curriculum over the one presently in use is also included.

The PREST curriculum is based on objectives which are closely tied to the specific literacy requirements of recruit training and uses materials which are based on content which is Navy specific. It is hoped that, in this way, time will not be lost developing skills which are part of many standard remedial reading programs but which are not necessary to successful completion of recruit training (for example, the ability to place diacritical markings on long and short vowels). Furthermore, materials used in the PREST curriculum are designed to provide information which will increase the recruits' knowledge of content which must be learned later in recruit training.

Components

Like the current ART curriculum, PREST is based upon mastery of specific objectives. The entire curriculum consists of 107 objectives in each of six skill areas, called "strands". PREST contains five reading strands plus one strand for study skills. Each strand is divided into clusters. Each cluster pertains to one specific objective. A cluster is composed of instructional, drill and practice, and evaluation activities.

Reading. The five reading strands are actually a modified version of a previously existing program, Control Data Corporation's (CDC's) Basic Skills Learning System (BSLS), a computer-based instructional program designed for use with adults reading below the eighth-grade level and delivered via CDC's PLATO terminal. The five BSLS reading strands represent each of the five major reading skills; word analysis, vocabulary development, literal comprehension, interpretive comprehension, and evaluative comprehension.

- Word Analysis introduces the basic concepts involved in the structure of words. In this module, the student examines simple word building, prefixes, suffixes, and compound words. (23 objectives, 43 hours of instruction available)
- Vocabulary Development introduces the basic concepts involved in vocabulary development as a basis for comprehension. In this module, the student examines comparatives, pronouns, and prepositions in context; homonyms, homophones, and homographs in context; synonyms; group and member; cause and effect; and idioms. (24 objectives, 45 hours of instruction available)
- Literal Comprehension introduces the basic concepts involved in literal comprehension of written material. In this module, the student examines methods of locating basic facts and understanding, remembering, and interpreting what is read. (27 objectives, 50 hours of instruction available)
- Interpretive Comprehension introduces the basic concepts involved in interpretation of written material. In this module, the student examines techniques for interpreting facts, descriptions, conclusions, and the total theme. (22 objectives, 40 hours of instruction available)

- Evaluative Comprehension introduces the basic concepts involved in the evaluation of written materials. In this module, the student examines techniques for determining the differences between fact and nonfact and the purpose of the author, evaluating what is read, and separating facts from opinions. (15 objectives, 29 hours of instruction available)

(See Appendix G, BSLS Reading Objectives, for a description of each objective in the BSLS reading curriculum.)

This particular program was chosen as the basis for the PREST reading curriculum because it is a comprehensive, computer-based program, it has been proven effective for use with adult populations (in adult learning centers, public schools, and correctional institutions); and its objectives correlate well with those established for use in the remedial reading instruction of Navy recruits. Almost all objectives in the BSLS program which are not relevant to recruit literacy needs were eliminated in the PREST version. Those remaining were left as part of a trade-off in management simplification. (See discussion of refinement of materials in Section Six: Evaluation.)

In addition to the on-line reading instruction, the BSLS reading curriculum also includes four pages of workbook practice activities to reinforce each objective taught on line. Those off-line materials which are related to the reading objectives taught in PREST have been included in PREST. (See Appendix B, Usage of Off-Line Materials, for a discussion of how these materials are used in PREST.)

And finally, in order to give recruits practice in applying key reading skills to actual Navy-related materials, approximately 50 pages of additional, supplemental reading practice materials were developed to supplement the learning of key objectives in the PREST reading curriculum. (See Appendix B, Usage of Off-Line Materials.)

The study skills component was developed by RBS as a totally new strand. It follows the conventions of the existing BSLS program. All objectives were chosen with Navy recruit training needs in mind. All content used for instruction, drill and practice, and testing comes from the two manuals which recruits use during recruit training, Basic Military Requirements and The Bluejackets' Manual, and the Instructor Guides, which list objectives, content to be covered, and reading assignments for each recruit training lecture.

Lesson content was developed as follows:

Lesson I: How to get ready
    for reading (previewing)
    for lectures (getting enabling objectives)
    for both (developing questions)
Lesson II: How to get information
    using table of contents and index
    looking for key words
Lesson III, IV, and V: How to take notes and how to listen
Lesson VI: How to study for and take tests

(See Appendix G, Introduction to Study Skills, for more information on how these lessons are to be conducted.)

The study skills module has also been designed to provide a transition between the learning of specific reading and study skills via a computer to the application of those skills to actual tasks required for listening, notetaking, studying, and test taking tasks required for completion of recruit training. These skills are those needed to read assignments in the recruit manuals, to listen and take notes in lectures, and to study for and take multiple-choice tests based on those lectures and readings.

In order to ensure that the recruit has made the transition to lecture learning, the final test for completion of PREST requires listening to a tape of an actual recruit training lecture and taking a test based on that lecture.

The student flow through these materials is explained in Appendix I, Introduction to Study Skills. Examples of the integration of special study skills taught on-line with information needed for recruit training are provided in Appendix H, Selected Displays from On-Line Study Skills Instruction, Drill and Practice, and Testing. An example of off-line application of skills taught on-line is provided in Appendix K, Sample Study Skills Application Activity. Appendix L, Tips for Good Study Skills, contains a synopsis of helpful reminders for recruits to refer to after they move back into recruit training. A copy of these "tips" is given to each recruit upon completion of PREST.

Management System

Figure 4 delineates the management system of PREST. All functions and activities in the center and right sections of the diagram are handled on-line (as shown by the heavy black line). Broken-line boxes indicate the main steps in a recruit's progress through PREST. Off-line activities are shown in the left section of the diagram.

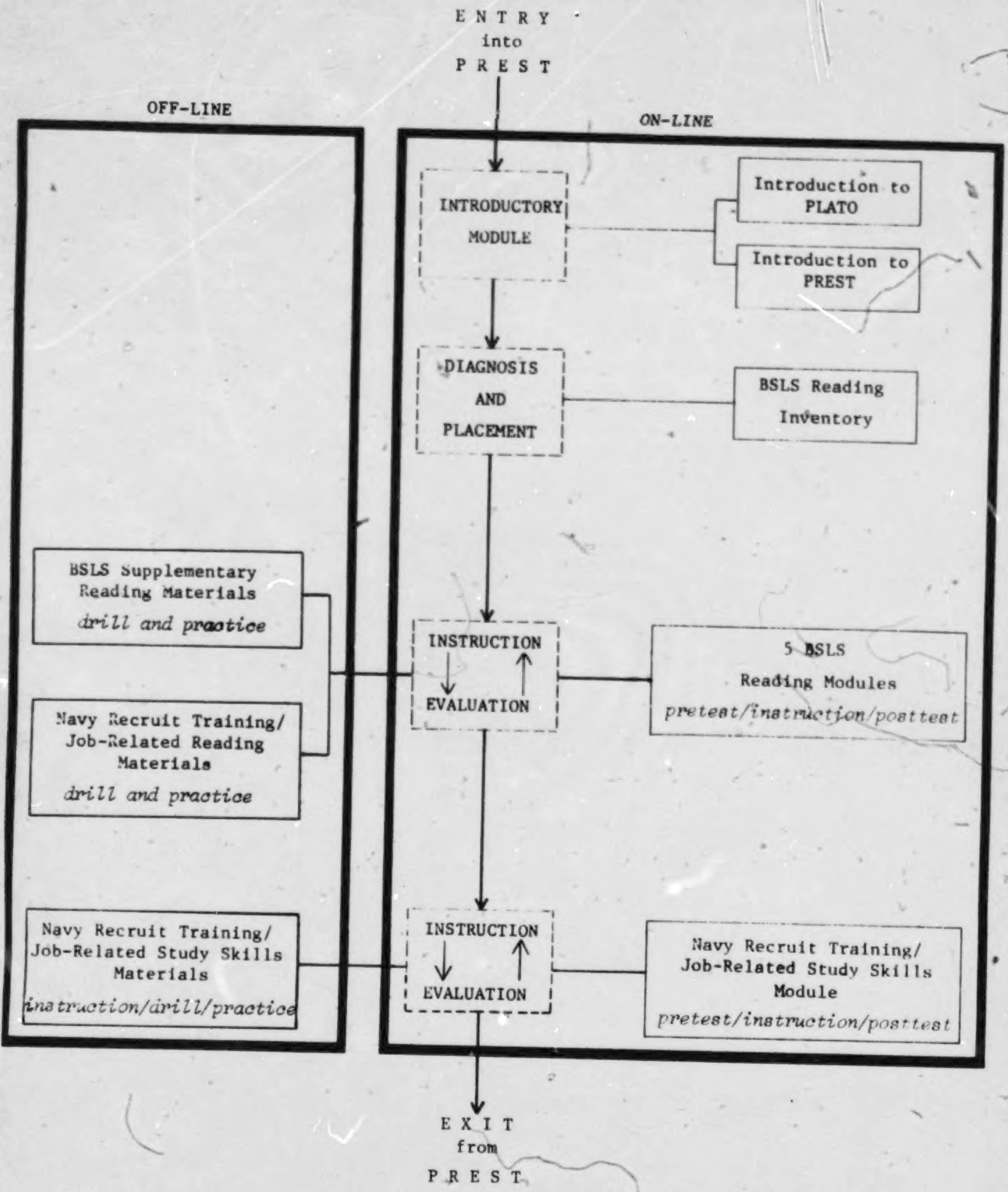
ENTRY
into
PREST
OFF-LINE
ON-LINE
INTRODUCTORY
MODULE
Introduction to
PLATO
Introduction to
PREST
DIAGNOSIS
AND
PLACEMENT
BSLS Reading
Inventory
BSLS Supplementary
Reading Materials
drill and practice
Navy Recruit Training/
Job-Related Reading
Materials
drill and practice
INSTRUCTION
EVALUATION
5 BSLS
Reading Modules
pretest/instruction/posttest
Navy Recruit Training/
Job-Related Study Skills
Materials
instruction/drill/practice
INSTRUCTION
EVALUATION
Navy Recruit Training/
Job-Related Study Skills
Module
pretest/instruction/posttest
EXIT
from
PREST

Figure 4. PREST management system

A recruit entering the PREST curriculum receives on-line orientation to the PLATO terminal and to the purpose and structure of PREST. The recruit then moves into a diagnostic screening (by means of the BSLS Reading Inventory) which leads to automatic placement in the appropriate section of the curriculum.

Upon entering the inventory for the first time, the recruit is tested on mastery of skills in the first area of the curriculum, word analysis. As soon as the recruit can no longer demonstrate mastery, (s)he is placed into the word analysis curriculum associated with that objective. The recruit has a second chance to demonstrate mastery by choosing to take a pretest on that objective. Other options are going into a tutorial, doing drill and practice, or working with off-line materials. If the recruit passes the pretest, (s)he is given the same options for the next objective. If the pretest is not passed, one of the other activity options must be chosen and a mastery test must be passed before the recruit moves on to the next objective. When a student has demonstrated mastery on the first half of the objectives in any skill area, (s)he has the option of going into the inventory for the next area.

PREST is designed for use by groups of one instructor for 24 recruits utilizing 12 PLATO V terminals. The PREST instructor functions as a resource, circulating among the recruits to provide spot assistance and to conduct small-group supplementary sessions when needed. Small-group instruction time is also used to provide recruits with additional Navy-related information which will contribute to their success when they return to regular recruit training.

All recordkeeping and management of recruit progress is handled by the computer, and this information is readily available on-line for review by the instructor or other authorized personnel. (See Appendix E, Examples of Student Data Collected On-Line.)

Advantages

PREST is compatible with the existing ART curriculum in that it consists of individualized instruction based on a diagnostic inventory; that is, the learner is given instruction only in areas in which (s)he is deficient rather than being put through an entire, comprehensive reading program which may consist of many lessons on content or skills which the learner already knows quite well.

However, PREST has the following advantages over the present ART curriculum:

- The diagnostic inventory is administered on line; therefore, no personnel are required to administer and score this test. In the present ART, diagnostic testing is done by means of the Stanford Diagnostic Reading Test which must be administered by Navy personnel.
- The diagnostic inventory is designed to correspond exactly with the instructional content; therefore, there is an exact match between objectives tested and objectives taught. In the present ART, results of the Stanford test must be interpreted to correspond to the objectives taught in the instructional program; therefore, there is not an exact match between objectives taught and the original diagnostic findings.
- Diagnosis, specific prescription, and recordkeeping are performed by the computer; therefore, no personnel are required to perform those functions. In the present ART, although the diagnostic test is fed into the CNTECHTRA centralized computer for scoring and provision of a generalized prescription, the use of this system requires the full-time assignment of one instructor to computer operation and the time-consuming specific prescriptions must be written out by the instructor for each recruit.

- All diagnostic, prescriptive, and actual performance data are available to authorized personnel at any time through the student monitoring capability of the system. This information is always immediately available on line to any authorized personnel; therefore, staff are freed from time-consuming clerical tasks and no space is required for storage of data.

- Once a learner is routed to a specific objective, that objective is retested through a pretest. At this time, it may be found the objective is indeed known, despite performance on the diagnostic test. The learner is then routed to the next appropriate objective; therefore, no time is spent on skill material that is already mastered. Under the present ART, if an objective is not passed on the diagnostic test, the learner must go through all materials that are assigned for the learning of that objective unless an instructor notes that this skill has been mastered and decides to send the learner to the next objective.

- Instruction may be conducted exclusively on line in a question/answer mode which provides immediate feedback to the learner as to her/his comprehension of the skill being taught. The learner may work with additional off-line materials if they are assigned by the instructor or if, at the conclusion of the on-line instruction, the learner feels the need for further instruction. Therefore, learning is self-paced and largely self-directed. Under the present ART, instruction is provided through small group and individual instruction and through the use of individualized, workbook-type materials. In all cases feedback comes through the instructor and is usually not immediate because of the very nature of small group instruction and because of the time required to correct workbook-type activities.

- Mastery of a specific objective is tested on line as soon as the learner feels that mastery has been achieved; therefore, the learner can opt for more or less instruction, before taking the mastery test. Feedback information as to mastery is immediate. If mastery has not been achieved, the learner is forced back into an instructional mode. Under the present ART, the recruit moves to a new objective after completing a lengthy set of prescribed exercises and after the instructor has ascertained that the recruit is ready to move on to another objective.

- Navy recruit training and job-related reading materials are used throughout PREST: therefore, while gaining mastery of a specific reading objective, the recruit also gains information about the Navy in general, information which is part of regular recruit training instruction, and information which will be valuable in learning to do certain Navy jobs. Whereas all of the self-instructional reading materials currently used in the present ART curriculum are directly related to objectives being taught, most of them were developed commercially for the general public and are, therefore, not Navy-related.

- The PREST computerized system relieves the instructor of most clerical evaluation, prescription, and group instruction activities, thereby enabling the instructor to function more as a resource person observing and interacting with recruits on a one-to-one, as-needed basis. In the present ART, a major portion of instructor time is taken up by scoring and recordkeeping.

- PREST enables recruits to work privately, without peer group pressures. Only the recruit, and the instructor, know what kinds of mistakes or progress the recruit is making in PREST unless the recruit decides to share this information. Therefore, the recruit need not be embarassed by wrong answers or hindered from trying to answer by the fear that others will see his/her ignorance; factors which often impede the instruction of young adults. In the present ART, all materials are in hard copy form and instruction and correction usually take place publicly.

- PREST gives the recruit a sense of control over his/her own learning because the recruit never has to wait for an instructor and the recruit can decide what to study next; what form the study should take (tutorial, drill and practice, or review): and when (s)he's ready for a mastery test. This sense of independence should be good preparation for the rest of the recruit's Navy career in which self-initiative is a key factor. In the present ART, the recruit must depend on the instructor to direct or okay each step of the instruction.

- And finally, because PREST involves state-of-the-art technology, the recruit getting remedial instruction via PREST feels that (s)he is moving on to a new and exciting learning experience rather than, as in the present ART, being put back into the same materials and classroom format in which (s)he already experienced failure during grade school and high school.

Section Six: Evaluation

This section describes both of the principal PREST evaluation efforts. The formative evaluation, conducted by RBS, was aimed at collecting data to guide the refinement of the PREST curriculum prior to summative evaluation. The summative evaluation, conducted by NPRDC as a third party evaluator with the cooperation and consultation of RBS, was aimed at collecting data on PREST in comparison with the existing ART curriculum.

Formative Evaluation

As a result of the formative evaluation activities, changes were made in the following areas: selection of objectives to be included, extent and nature of information provided by instructors, length of instruction time, extent and use of off-line materials, general management procedures, and recruit motivation.

Objectives included. Initially, all clusters were eliminated which were based on objectives not germane to Navy recruit training, e.g., Strand Four, Cluster 21, Forming and Identifying Similes. However, during the prepilot some of these clusters were restored to the curriculum because their being included presented less difficulty than the instructor intervention required for their elimination.

Extent and nature of instructor intervention. Although the on-line materials are generally self-instructional, instructor intervention was found necessary at two specific points. The general introduction to the use of the PLATO keyboard does not teach how to type an apostrophe; this skill is necessary for Strand One, Cluster 3. If the recruit doesn't get this information from the instructor before beginning the BSLS Inventory, (s)he will fail the inventory test on that objective and be placed in the curriculum at that level, even though contraction formation was a previously mastered skill. Also, in the cluster on comparatives, the tutorial teaches -er and -est, but the mastery testing also requires knowledge of the irregular form of the comparison good, better, and best as well as the non-inflected forms of important, more important, and most important. The instructor was, therefore, told to intervene with instruction on these forms before the mastery test was undertaken.

It was also found that the instructors needed a uniform strategy for assisting recruits in the decoding of unknown words. The only decoding strategies taught directly in the BSLS reading curriculum are the recognition of inflectional endings, affixes, and elements of compound words. The instructors had taught phonetic analysis in the present ART curriculum, which uses an approach based upon the recitation and application of commonly taught phonetic "rules", for example, rules for long and short vowel sounds. It was felt that use of this method would introduce unnecessary complications in that these rules were not taught on line; they required a degree of abstraction which was difficult for many of the recruits in the program; and, perhaps worst of all, they evoked in many of the recruits memories of past failures. Therefore, instructors were told to assist recruits in identifying unknown words by helping them to identify known word patterns, for example, recognizing the familiar grapheme clusters in con-tam-in-a-tion. This method was supplemented when necessary by ad hoc information on sound/symbol correspondence, for example, ph = f, or c stands for either s or k. This approach seemed adequate. Perhaps because recruits were taught to take words apart in the word analysis area of the curriculum, this method reinforced the analysis techniques they were learning on line; perhaps they got enough practice using this technique since they were constantly bombarded by print while working on line, or perhaps the words being taught had enough meaning to provide memory assist. It was originally thought a specific decoding component would be necessary for the curriculum; however, the recruits learned to function quite well using this technique.

In general, however, instructor intervention primarily took the form of encouragement, motivation, discussion of the place of reading in the recruits' future in the Navy, and provision of information about what to expect upon return to regular recruit training.

Length of instruction time. The PREST instructional day initially followed the same schedule as the regular ART curriculum, 0830 to 1045 and 1230 to 1445, with a ten-minute break mid-session both morning and afternoon. During the first week of the prepilot, PREST recruits were asked to report one-half hour before the recruits in the regular program. The PREST recruits accepted this change willingly since they seemed to realize that the more time they put in, the faster they would be able to return to regular recruit training. In fact, it became increasingly difficult to make them take a mid-session break. Rarely did anyone take a full ten minutes and the instructors were compelled to require that everyone sign off and stand up at mid-session. Furthermore, the recruits consistently signed on a few minutes before 0800 and returned from lunch to sign back on at 1215 instead of 1230. By the end of the prepilot, it was ascertained that a fatigue factor was not present by 1445 so the PREST instruction day was extended to 1530. This presented no scheduling problem since the 1500 to 1530 period in the ART recruit's day had been previously allocated as a "homework" period.

During the prepilot phase 13 recruits were carefully monitored in their progress through the PREST materials. Length of instructional time on-line was of particular interest. The range and average time on-line for each strand and total are shown below.

Hours / Strand	High	Low	Average
I	19.2	4.0	9.0
II	6.5	0.6	3.0
III	15.4	1.7	7.7
IV	6.0	0.5	2.7
V	4.1	1.0	2.8
VI	13.2	4.6	7.4
Total	56.9	15.0	32.7

As can be seen there was substantial variability among the recruits. In general, Strands I, III, and VI took more time than the others. The longest time overall was 56.9 hours; the shortest was 15 hours; and the average was 32.7 hours.

Recruit motivation. One of the formative evaluation interests was the motivational aspect of instruction through the PREST program. This area was addressed through observation of the prepilot phase and administration of a motivational instrument during the actual pilot test. (See Appendix N, Navy Recruit Atitude Survey.) Each is briefly discussed below.

During the prepilot, most of the recruits were very positive in their remarks regarding PREST. The facts that they tended to come early, stay late, and resist taking breaks further indicate a positive response. Both instructors involved with the project seemed to enjoy their role in PREST. They were active in their interactions with the recruits and with the PLATO terminal. They openly acknowledged the benefits to the recruits of their changed role and their ability to spend more time working with individual recruits.

Summative Evaluation

The summative evaluation of PREST was designed and conducted by the Naval Personnel Research and Development Center (NPRDC). The evaluation was intended to determine PREST program learning effects and cost effectiveness relative to the traditional classroom approach to remediation. RBS staff provided review and advice related to the evaluation throughout the project. A full report of this evaluation will be published by NPRDC in mid-October 1980. The discussion below briefly outlines the evaluation plan and RBS activities. Several issues concerning the evaluation results are reported elsewhere. (See Section Four: Summary of Project Activities and Section Seven: Discussion.)

Evaluation plan. The summative evaluation was designed to include a group of 60-80 recruits participating in the PREST curriculum and a similar group, who experienced the ART program, for comparison purposes. (See Appendix O, Evaluation Plan, for NPRDC's description of this plan.) Since possible effects of entering level were to be investigated, both groups were to have one-half of their members above and below 5.0 reading grade level (RGL) at the outset. Such a division would permit aptitude-treatment interaction to be tested.

The measurement instruments reflected the program focus on reading. The Reading Comprehension subtest of Gates-MacGinitie Survey D (1965) was used as a pretest and posttest of RGL. The Navy Recruit Reading Test (NRRT), developed by NPRDC for use in this evaluation, was used as a pretest and posttest measure of Navy specific reading skills. The academic tests taken by all recruits during their basic training program were selected as a longer-term measure of program effect. Other recruit background and related data were collected. Cost information and projections were developed for both the PREST and ART programs. Recruits also received two administrations of the Gates-MacGinitie (1978 Forms 1 and 2) in the process of referral for remediation.

The comparison group was scheduled to be initiated in mid-October 1979 and concluded in February 1980. The PREST program was scheduled for a mid-February 1980 start and May 1980 completion. The two groups could not be operated simultaneously because not enough recruits would be referred to the ART during those periods. Pretests were administered by

Navy ART personnel upon referral for remediation; posttesting was accomplished in a similar fashion after completion of remedial training. All other evaluation functions were conducted by NPRDC personnel.

RBS activities. RBS' role of review and consultation was accomplished through continuing telephone and written communication with NPRDC evaluators and a series of on-site visits to Orlando during the experimental period.

Beginning in the summer of 1979 NPRDC evaluation plans and procedures were regularly reviewed and commented upon. Numerous issues were identified and pursued with NPRDC staff. In this interchange RBS attempted to be a resource to NPRDC and to ensure representation of RBS interests in the evaluation.

The first site visit was conducted in January 1980, at which time RBS staff interviewed instructional and testing personnel, reviewed recruit records, and observed comparison group procedures. A second visit was also made in January to observe the PREST program procedures, review records, and meet with NPRDC staff to pursue identified problems and issues. In February 1980 the Project Director met with the NPRDC evaluator in Orlando to complete arrangements for the pilot phase of PREST. Based on the pre-pilot experience some concern for reaching desired group size (80) was expressed, and Navy personnel agreed to do all that was possible. The final visit occurred in May 1980. During this visit instructional and testing personnel were interviewed; PREST and comparison group records were reviewed; the PREST procedures were observed; and recommendations were prepared for NPRDC.

The final evaluation activity was conducted in August 1980, when RBS staff met with NPRDC evaluators for a final review of the evaluation. During these meetings all major aspects of both the impact and cost studies were discussed, including recruit samples, instrument characteristics, analysis models, and comparative cost specifications. Preliminary descriptive statistics were reviewed. Many refinements and revisions related to analysis and interpretation were explored and incorporated into the plan.

Motivation substudy. Coincident with the summative evaluation a substudy of recruit motivational characteristics was undertaken. This study was prompted by RBS and included by NPRDC in the summative evaluation procedures. It was thought that the results would be of formative interest in investigating motivation and, possibly, of use as an explanatory variable in the summative study.

RBS undertook the development of the "Navy Recruit Attitude Scale". (See Appendix P, The Development of the Navy Recruit Attitude Scale. The scale itself is attached as Appendix N.)

The instrument was prepared to measure recruit motivation (Scale A), morale and job satisfaction (Scale B), and general attitude toward learning (Scale C). Items were adapted from previously developed assessment instruments. The scale was administered as a pretest and posttest to PREST participants as well as comparison group recruits who went through the ART instruction. Results are summarized below; all reported scores are averages on a scale from 1.00 (low) to 4.00 (high).

Score / Group	A	B	C	Total
PREST				
Pre	3.15	3.12	3.13	3.14
Post	3.24	3.15	3.27	3.22
Change	+.09	+.03	+.14	+.08
Comparison				
Pre	3.09	3.09	3.09	3.09
Post	3.15	3.14	3.16	3.15
Change	+.06	+.05	+.07	+.06

As can be seen from these results, motivation as measured by this scale was high prior to instruction and showed a small positive change after instruction. The pattern was similar for both groups.

Section Seven: Discussion

This section discusses some of the unforeseen factors which influenced the development, testing, and evaluation results. Most could not have been controlled for; however, the many that could have been controlled for were either considered insignificant by the Navy or were discovered by RBS only after it was too late to correct or compensate for these factors.

Development Issues and Limitations

During the course of the development of PREST, it was found that some of the original design specifications for PREST were based upon information about the existing ART which was not borne out in actual practice at the time of the PREST evaluation.

Time factors. At the initiation of the project, CNET had stated that the existing ART curriculum ran for five weeks; therefore, RBS was to develop a curriculum that ran no more than five weeks, but if a three-week program could be developed, PREST would represent a time saving of 40 percent over the existing curriculum. Before the PREST curriculum was tested, however, actual observation demonstrated that recruits were averaging only three weeks for completion of the existing ART. Therefore, the reduction in instructional time achieved by PREST was not as powerful as had been originally hoped.

CNET had also stated at the initiation of the project that the existing ART curriculum was based upon a six-hour academic day; therefore, RBS was to develop a curriculum for that time frame. In actual practice, however, recruits were scheduled for only five hours of academic training (0830-1100 and 1230-1500) and, in fact, with two 10-minute breaks and a dismissal 10 minutes before the period end to allow time for troop formation, the academic day actually ran four hours and 20 minutes. RBS was able to extend the academic day to 0800-1100 and 1230-1530 for the testing of PREST. With the break and early dismissal, this brought the academic day to approximately five hours and 10 minutes. Although this was close to the original PREST design specifications, it was one hour longer than the actual time devoted to the existing ART academic day.

Similarly, it was discovered that recruits were often called out of their reading instruction classes for a variety of reasons, such as going to see the Chaplain or taking a swimming test, thus further reducing actual instruction time. Furthermore, Friday afternoon class time was routinely replaced by clean-up details. When PREST-enrolled recruits were relieved of these duties, there were some indications of resentment on the part of the Company Commanders and the instructors, who lost their free time on Fridays.

Attitudinal factors. RBS met some initial resistance to the investigation of a new computer-based curriculum. This resistance was based primarily on two factors. (1) The existing ART curriculum had only recently been developed and data were still being collected for its evaluation at the time of the initiation of PREST. Officers and instructors, therefore, were not enthusiastic about testing yet another curriculum.

And (2), the words "computer-based" evoked some very negative feelings which seemed to be based primarily on experiences with the CMI (computer-managed instruction) aspect of the existing ART curriculum. This CMI component was run on a large, old computer in Millington, Tennessee. The instructors reported a great deal of frustration associated with this computer (for example, down time, waiting for access, and malfunctions leading to erroneous scoring and prescriptions). As a result, they wished they could operate the existing curriculum without the Millington computer and were certainly not interested in any curriculum that would be even more computer dependent than the existing one. RBS, therefore, had to devote a considerable amount of time to assuring involved personnel that the problems they were experiencing were related to one specific system and were not endemic to all computer-based instruction.

Another attitudinal factor which played a role in the reception of the testing of PREST at RTC San Diego and, to a lesser degree, at RTC Orlando was that officers and instructors at those two bases felt that the need for ESL (English as a Second Language) was the top priority for new curriculum development; therefore, they were not initially interested in the testing of a reading curriculum.

Furthermore, possibly because the non-PREST instructors were not properly informed about the PREST project or possibly they felt their own positions were being threatened, there was a considerable amount of unconcealed hostility on the part of the non-PREST instructors to the use of PREST with ART recruits. New PREST recruits were teased about being sent to "the hole", because the PREST room was windowless and dimly lit to reduce glare on the terminal screens, and the PREST instructors were put under considerable peer pressure as the non-PREST instructors tried to find signs of recruit failure or discontent with PREST.

Cost factors. Under the original project agreement, CNET was to furnish five PLATO terminals which were already owned by the Navy. It was later discovered that those five terminals were part of the old, cumbersome PLATO IV system and, therefore, incompatible with current Control Data software, including that needed to operate the Basic Skills Learning System reading program. For this reason, five additional terminals had to be rented by RBS, thereby creating an unexpected additional project expense.

Use of the curriculum. Because there were not enough recruits admitted to the ART program who read between 4.0 and 6.0 RGL, the levels for which the program had been designed, individuals who read above the 6.0 RGL were instructed via PREST without any alteration in the curriculum to compensate for the skills and needs of this group. Although data collected on this group were not to be included in the final results, the very presence of these individuals and their reactions to the curriculum may have affected the responses of the 4.0 to 6.0 RGL recruits who went through PREST at the same time.

Furthermore, because a control sample of recruits reading between 6.0 and 6.7 RGL was identified and followed after the conclusion of the testing of PREST, this control sample was undeniably affected by the PREST curriculum. For example, all of the control group instructors had access to the PREST supplementary off-line reading materials and at least one of the instructors used these materials extensively in the instruction of control group recruits.

Evaluation Issues and Limitations

The major issues encountered in the summative evaluation were related to the recruit groups, measurement instruments, and statistical analysis design. Each issue required or reflected decisions which in turn encumbered limitations for the evaluation study which should be considered in interpreting the results. These issue areas are briefly discussed below.

Group comparability. Comparability was a concern initially because the total recruit pool referred for remediation was not of sufficient size to allow non-biased selection simultaneously for PREST and experimental groups. Consequently, it was decided to measure the comparison treatment (ART) from October 1979 through February 1980 and the PREST treatment from February 1980 through May 1980. The differences in recruits entering the Navy at these two periods in time are unknown, hence making the evaluation groups of unknown comparability.

The group comparability problem was compounded by a change in Recruit Training Command policy in March 1980. During the comparison group treatment the RGL cutoff for referral of recruits to the ART had been 6.0. However, during the experimental treatment command policy raised the cutoff to 6.7 RGL in order to increase the numbers of recruits in the ART.

This created a subset of recruits in PREST who had no comparison counterpart in terms of entering achievement level. It was attempted to add a second comparison group during Summer 1980; however, command policy reduced the cutoff to 6.0 again before sufficient recruits could be included in the supplemental control group. This phenomenon had the general effect of adding another factor of non-compatibility to the evaluation groups and the specific effect of rendering the higher achieving experimental subset useless for evaluative purposes.

As of May 1980 the group sizes were as follows:

RGL Groups	4.0-4.9	5.0-5.9	6.0-6.7	Total
Prest	8	32	32	72
Comparison	14	26	0	40

As can be seen from this display, the high achieving end of the spectrum had no comparison counterpart for analysis. The lower end was also too small for reliable statistical treatment, thus precluding aptitute-treatment interaction analysis. This left the middle range only for testing program effects.

Events during the experimental period thus narrowed the scope of the evaluation by limiting the size and performance range of the recruit groups. This factor, and the unknown equivalence of the two groups, render effectiveness interpretation tentative.

Measurement instruments. Instruments are often a source of difficulty because of the tension between the relevance of newly constructed measures and the statistical qualities of standard forms. Some concerns in this area were noted in the present study. One of the two effectiveness measures, the NRRT, was newly constructed, with very little information available on its statistical qualities. The test was designed to be predictive of success on the recruit academic tests, but its predictive value was unknown at the outset of the study. The Gates also encountered a problem in that a number of PREST recruits "ceilinged" on the pretest; that is, they came close to the maximum score thus allowing little room for development. These measurement limitations indicate that measured effects may not completely represent actual effects.

Statistical analysis designs. The available analysis designs for non-comparable groups are several. Each one has strengths and limitations. Each compensates for initial non-equivalence with some procedure which is based on assumptions about the statistical qualities of the data sets. None can completely compensate for the design limitation of non-comparability. This suggests another caution in interpreting results.

In conclusion, a series of limitations was encountered in the summative evaluation. The evaluators conscientiously tried to compensate for these limitations but in these cases only partial success is possible.

Section Eight: Recommendations

Based upon observation and analysis of the pilot implementation of PREST, several recommendations have been developed by RBS. These recommendations were developed in consultation with those individuals most closely involved with the reading instruction of Navy recruits and with the conduct of the PREST evaluation. They are presented here in an attempt to make maximal use of the accomplishments of this project.

One set of recommendations has been developed for consideration if the PREST curriculum is adopted; one set has been developed for consideration if the PREST curriculum is not adopted; and a third set has been developed for consideration whether or not the PREST curriculum is adopted. This section presents those recommendations.

If the PREST curriculum is adopted, it is recommended that:

- training of instructors be accomplished by means of the instructor training procedure developed for PREST. This procedure includes hands-on experience with PLATO (familiarity with terminal and system usage, maintenance procedures, and both instructor and student on-line usage of PREST and an introduction to the PREST curriculum (its educational principles, available materials, management system, and the interdependent roles of the computer, the instructor, and the off-line materials).
- training of instructors be provided by a qualified trainer who is familiar with the operation of the PLATO system, the PREST curriculum, instruction of young adults with reading and study skills deficiencies, and the realities of instruction in the ART program.
- implementation assistance be provided by one individual working at all three RTCs in order to guarantee uniformity of procedures and maintain the intergity of the curriculum as tested. This individual should, therefore, be thoroughly familiar with the pilot implementation of PREST.

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- the PLATO inter-terminal communication and monitoring capabilities be used during the first months of the implementation period to enable one individual to assist instructors and monitor implementation at all three sites. This individual should be, ideally, the same person who trains the instructors and provides implementation assistance.

- implementation be inaugurated at all three RTCs within a brief span of time in order to maximize efficiency in initial training and observation, i.e., so that the individual carrying out the training and monitoring could circulate between bases and assist instructors and monitor usage via PLATO during a brief period of time, after which routine assistance would be provided by CDC's PLATO consultants and Hotline staff, available at all times that the system is in operation; specific program assistance could be provided among instructors at the three bases via interterminal communication; and periodic monitoring of usage could be done by CNTECHTRA staff during their regularly scheduled periodic visits to the RTCs or via a terminal in Millington, or by other designated personnel at any of the three RTCs.

- minor modifications in the curriculum be made to make PREST suitable for use with individuals reading between 3.0 and 4.0 RGL. Experience during the prepilot demonstrated the feasibility of using PREST with individuals reading at less than 4.0; however, modifications in the curriculum were indicated for use with this group. Such modifications should be made by someone who is knowledgeable in the areas of both curriculum development and instruction of adults who read at less than a fourth-grade level.

- minor modifications in the curriculum be made to make PREST suitable for use with individuals reading between 6.0 and 6.7 RGL, including those who are referred to the ART due to failure on academic tests. Experience during both the prepilot and pilot demonstrated the feasibility of using PREST with individuals reading at these levels; however, modifications in the curriculum were indicated for use with this group. Such modifications should be made by someone who is knowledgeable in the areas of both curriculum development and instruction of adults who read at less than a seventh-grade level.

- other educational uses of the PLATO system be explored, e.g., use of the BSLS math component, CDC's GED preparation program, and various technical courses which could be used in preparation for or in conjunction with "A" School courses. These PLATO courses could be incorporated into a formal instructional program or used as resources for independent study or self-improvement. If these courses are shown to be desirable additions, the Navy's usage of the PLATO system could be increased, thereby reducing per unit costs.

If the PREST curriculum is not adopted, it is recommended that:

- off-line reading materials developed for PREST be incorporated into the current ART curriculum, i.e., the supplemental Navy-related reading worksheets.

- all or selected elements of the off-line portion of the PREST study skills module be incorporated into the current ART curriculum. If the entire study skills portion of PREST were adopted, instructional, drill and practice, and test items for some objectives would need to be developed to replace those elements that are currently on line.

- materials identified as supplemental aids to reading skills development be incorporated into the current ART curriculum, i.e.,

  (a) off-line materials of the BSLS reading component, which could be easily keyed into the existing ART reading curriculum. Copies of these materials, grouped into five volumes, one for each of five basic reading skills, are already owned by the Navy and in storage at RTC Orlando.

  (b) The Language of the Navy in English, selected chapters of which could also be keyed into the existing curriculum or used as optional extra-practice materials. This book costs $2.75 and two copies are currently in storage at RTC Orlando.

- extension of the recruit reading instruction periods from the 0830-to-1100 and 1230-to-1500 time slots currently scheduled for ART instruction to the 0800-to-1100 and 1230-to-1530 schedule which was followed for PREST in as much as the recruits in PREST displayed no evidence of fatigue or decreasing motivation when the regular schedule was increased by one hour per day.[1] Since it is highly desirable for the recruits to complete the remedial program in as few days as possible, increasing the current five-hour instructional day by one hour per day would amount to the saving of one entire instructional day per week.

- the feasibility of split shift use of the ART facilities be studied. Split shift could be accomplished with the existing five-hour day or the recommended six-hour day. Also, during peak loading, three or four shifts could be instituted.

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[1] It is recognized that the contractual requirements of the Orange County school teachers would create some difficulty in increasing the instructional period in Orlando.

Whether or not the PREST curriculum is adopted, it is recommended that:

- those individuals working on the development of an ESL curriculum for the ART examine the instructional strategies and Navy job-related aspects of PREST when developing ESL.

- the feasibility of a computer-based reading curriculum for the ART be further investigated. Management and/or delivery of instruction via microcomputers and other stand-alone systems should be explored. In so doing, however, quality and appropriateness of instruction should be given careful scrutiny and instructional packages delivered via attractively priced equipment should not be accepted without careful evaluation by individuals knowledgeable in the areas of both curriculum development and basic reading instruction for adults.

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APPENDIX A

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APPENDIX B

USAGE OF OFF-LINE MATERIALS

BSLS Workbooks	*If student does not understand instruction given on line,* instructor should provide explanation then, if needed, assign practice exercises using the off-line materials provided for that cluster. If the instructor doesn't want the student to return to the tutorial after completing the off-line materials, the student's progress should be set ahead one cluster, then back to the cluster where work was in progress. In this way the student has the opportunity to go to the pretest(which is equivalent to the progress check). *If a terminal is not available,* the student may use the off-line materials designed for use with the clusters (s)he would be using on-line if a terminal were available.
PREST Worksheets	*If the student is near completion of Strand 3 or is in Strands 4 or 5 and requests/needs additional work,* the instructor may assign a selected group of these materials. Materials should be selected based on the particular needs of the student, the ability of the student, and the amount of time which is available for work on them. *If the student completes the 5 reading strands before the end of a class day,* these materials should be assigned for the remaider of that day. (Specific materials will be chosen based on the considerations in the paragraph above.) The student should be told that these materials are being assigned to give him/her review of reading skills just taught and to provide him/her with information which is part of the BMO instruction (s)he will get upon return to regular recruit training. *Students may continue to work on these materials as homework throughout the study skills portion of the training* if the student is motivated to do so.
Improving Your Navy Reading Skills	*This workbook is given to each student at the beginning of the first day of instruction.* The student is shown the types of information covered and where the activity answers are located. The student is also told to study from and work in this notebook every night if at all possible in order to practice the skills (s)he is learning during the day and to gain extra information which will be needed to pass the Academic Tests in recruit training. If the student has any questions about material in the workbook, (s)he can ask an officer in his/her compartment or ask the instructor the next day. The student must understand that the notebooks must be returned on the last day of study skills training and that there should be no writing in these books.

USAGE OF OFF-LINE MATERIALS(cont.)

Improving Your Navy Reading Skills	*Portions of this workbook are used for a study skills application activity.* The application activity for Cluster 2 of Strand 3 uses the questions at the end of the following sections: Learning the Navy Language, pp. 14-15; Your Pay and Allowances, p.110; UCMJ, pp.53-56(omitting 4, 13, and 14); Naval History and Traditions, pp.47-50; Personal Conduct, p.17; and Equal Opportunity and Treatment, p.12. The student is asked to answer these questions by using the search techniques taught in this cluster, finding the answers in the materials directly preceding the questions. Questions are to be assigned in the order given above. The numbers of questions completed will depend on the skills of the student and the amount of time available.
The Language of the Navy in English	*This book may be used in class or lent overnight* to any recruit who is near completion of Strand 3 or is working in Strands 4, 5, or 6 and who wishes to gain extra practice in reading/studying or who wants to get more Navy-related information. Students must not write in this book and the instruco instructor must be sure it is returned in the morning since it is the only copy available.
Bluejackets' Manual	*Portions of this manual are used as a reading assignment* prior to the mini-lecture on the Enlisted Service Record(pp. 35-38) and the taped lecture on Enlisted Rate Recognition(pp. 16-17 and 44-49).
Basic Military Requirements	*One chapter of this book('Survival in Water') is used as part of the application activities* for Clusters 1 & 2 of Strand 6. Portions of this book are used as a *Portions of this book are used as a reading assignment* prior to the taped lecture on Enlisted Rate Recognition(pp. 17-31) and *The illustrations on pp. 20-21 are used as visual aids* during the taped lecture on Enlisted Rate Recognition.
How to Study	*One chapter('How to Listen More Effectively') is used as the basis for the listening application activity.*

APPENDIX C

Name____________________________

RECRUIT PROGRESS
STUDY SKILLS PROGRAM

	Intro.	Tutorial	Drill & Practice	Application	Progress Check	Review Check
Cluster 1						
Cluster 2				1 2		
Cluster 3						
Cluster 4						
Cluster 5						

Reading Assignment & Application Activity for Listening Skills ☐

Mini-Lecture on Enlisted Service Record ☐

Cluster 6						

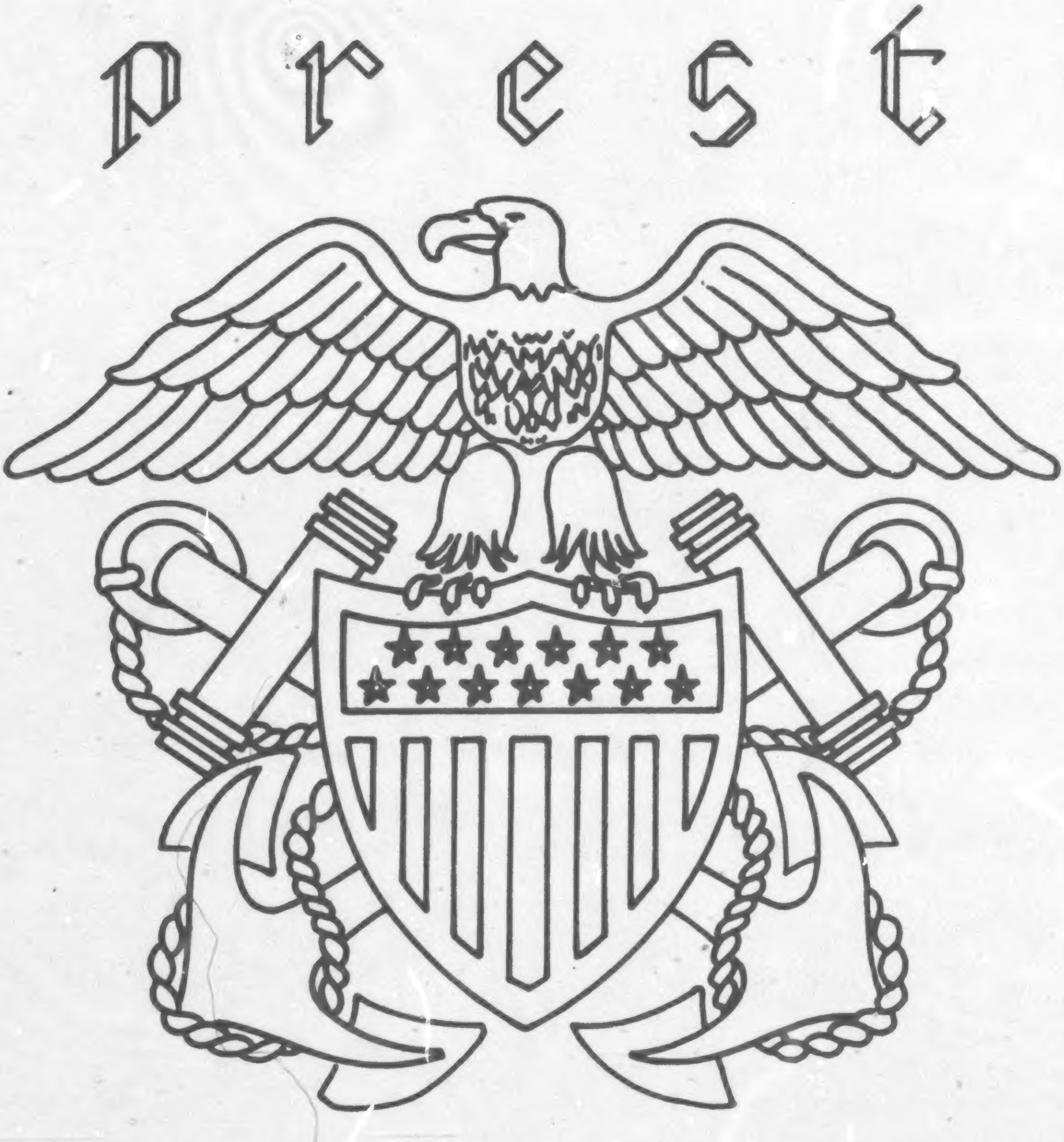
Quiz on Enlisted Service Record ☐

When you have completed all the above activities, get the enabling objectives and reading assignment for Enlisted Rank Recognition. You must get these one day before you listen to the taped lecture on Enlisted Rank Recognition.

On the next day, ask the instructor for the taped lecture on Enlisted Rank Recognition. You will take notes on this lecture and have time to study these notes and any reading assignments you would like to review. When you think you know this material, ask your instructor for the test. You must have a score of at least 80% on this test in order to return to a regular recruit company.

APPENDIX D

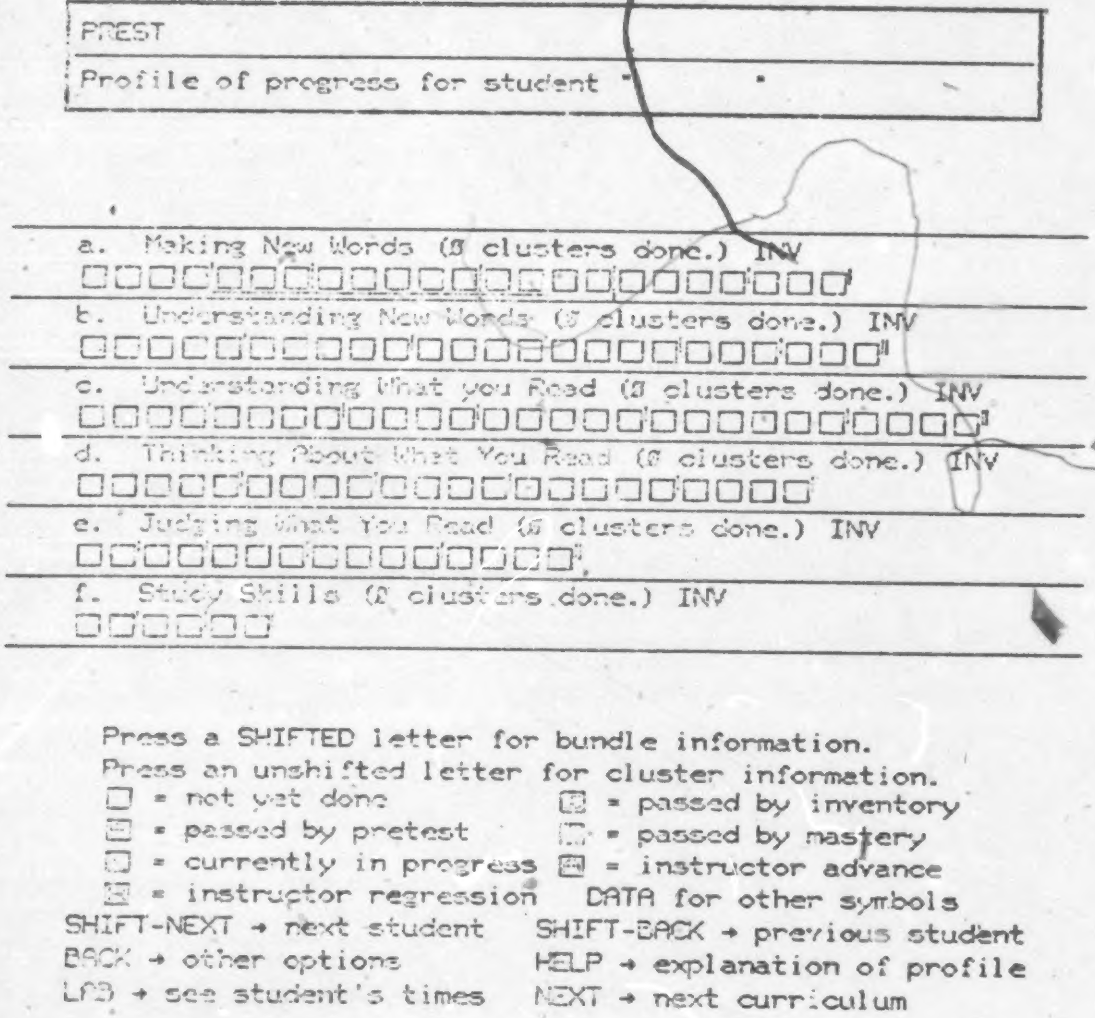
Navy Emblem and Navy-Related Graphic Elements



PREST

APPENDIX E

Examples of Student Data Collected On-Line



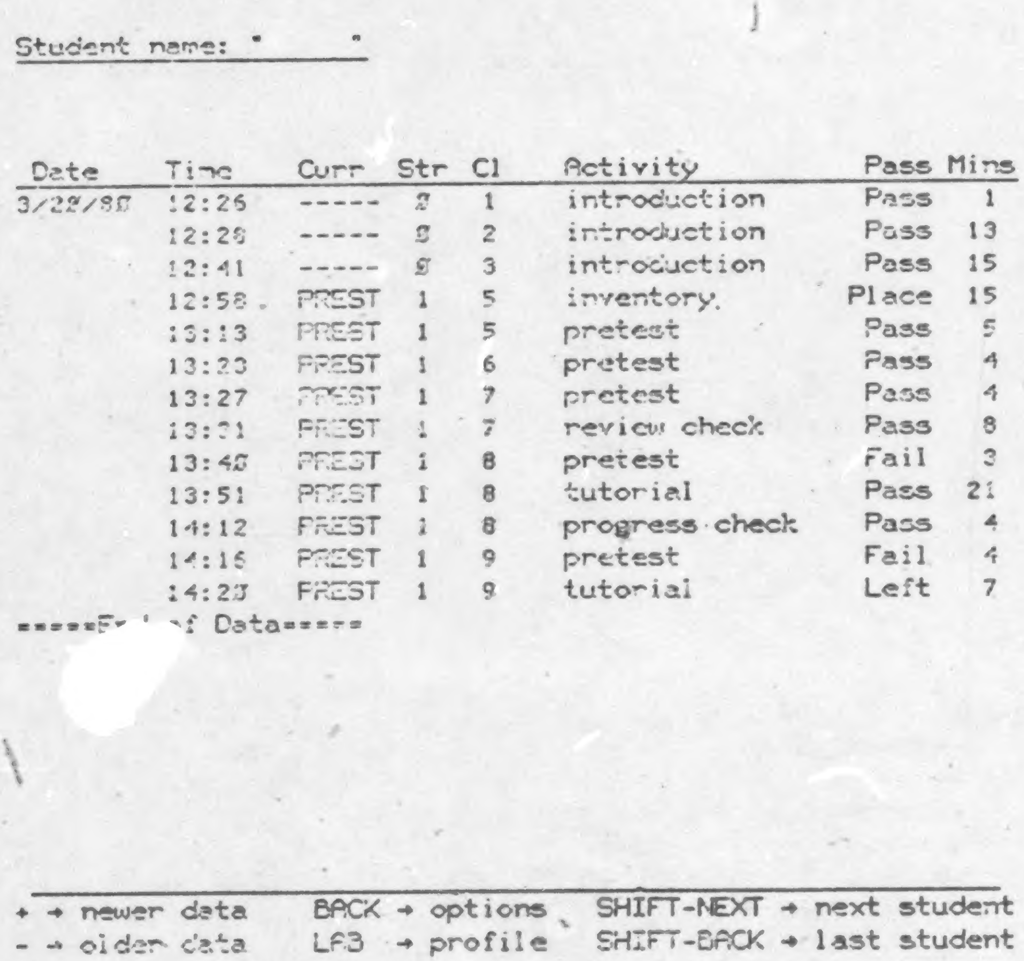
```
PREST
Profile of progress for student

a.  Making New Words (0 clusters done.) INV
☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
b.  Understanding New Words (0 clusters done.) INV
☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
c.  Understanding What you Read (0 clusters done.) INV
☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
d.  Thinking About What You Read (0 clusters done.) INV
☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
e.  Judging What You Read (0 clusters done.) INV
☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
f.  Study Skills (0 clusters done.) INV
☐☐☐☐☐☐

   Press a SHIFTED letter for bundle information.
   Press an unshifted letter for cluster information.
   ☐ = not yet done            ▣ = passed by inventory
   ⊟ = passed by pretest       ⬚ = passed by mastery
   ◌ = currently in progress   ⊞ = instructor advance
   ⊠ = instructor regression    DATA for other symbols
SHIFT-NEXT → next student    SHIFT-BACK → previous student
BACK → other options         HELP → explanation of profile
LAB → see student's times    NEXT → next curriculum
```

Figure 5. Recruit progress record

BEST AVAILABLE COPY



```
Student name: "        "


Date     Time   Curr  Str  Cl   Activity            Pass Mins
3/22/80  12:26  -----  0    1   introduction        Pass    1
         12:28  -----  0    2   introduction        Pass   13
         12:41  -----  0    3   introduction        Pass   15
         12:58  PREST  1    5   inventory.         Place   15
         13:13  PREST  1    5   pretest             Pass    5
         13:23  PREST  1    6   pretest             Pass    4
         13:27  PREST  1    7   pretest             Pass    4
         13:31  PREST  1    7   review check        Pass    8
         13:40  PREST  1    8   pretest             Fail    3
         13:51  PREST  1    8   tutorial            Pass   21
         14:12  PREST  1    8   progress check      Pass    4
         14:16  PREST  1    9   pretest             Fail    4
         14:20  PREST  1    9   tutorial            Left    7
=====End of Data=====




+ → newer data     BACK → options    SHIFT-NEXT → next student
- → older data     LAB  → profile    SHIFT-BACK → last student
```

Figure 6. Recruit progress with time reference

BEST AVAILABLE COPY

APPENDIX F

PREST DEMONSTRATION

Monday, May 12/am

Chuck Morris
Training Analysis and Evaluation
Group (TAEG)
Orlando, Florida 32813
(305) 646-4367

Gene Micheli
Training Analysis and Evaluation
Group (TAEG)
Orlando, Florida 32813
(305) 646-5198

Jim Corey
Training Analysis and Evaluation
Group (TAEG)
Orlando, Florida 32813
(305) 646-4367

Doug Copeland
Training Analysis and Evaluation
Group (TAEG)
Orlando, Florida 32813
(305) 646-5195

Mike Zajkowski
Training Analysis and Evaluation
Group (TAEG)
Orlando, Florida 32813
(305) 646-5198

Larry Keeler
Training Analysis and Evaluation
Group (TAEG)
Orlando, Florida 32813
(305) 646-4367

Peter Kincaid
Training Analysis and Evaluation
Group (TAEG)
Orlando, Florida 32813
(305) 646-5673

Chuck Guitard
Training Analysis and Evaluation
Group (TAEG)
Orlando, Florida 32813
(305) 646-4609

Monday, May 12/am(cont.)

Gary W. Hodak
Training Analysis and Evaluation
Group (TAEG)
Orlando, Florida 32813
(305) 646-5673

COL A. J. Castellana
U. S. Marine Corps
Naval Technical Equipment Center
Orlando, Florida 32813
(305) 646-4124

Monday, May 12/pm

LTC Mark T. Pilgrim
Training Development Institute
OTAD
Fort Monroe, Virginia 23351
(804) 727-3608

PREST DEMONSTRATION (cont.)

Tuesday, May 13/am

William R. Shoen
Service Schools Command
Code: 02A
Navy Training Center
Orlando, Florida 32813
(305) 646-4122

L. K. Yamashita
Service Schools Command
Navy Training Center
Orlando, Florida 32813
(305) 646-5136

LCDR R. H. Coffin
Service Schools Command
Navy Training Center
Orlando, Florida 32813
(305) 646-4122

Tuesday, May 13/pm

David J. Daly
Code: N-82
Naval Training Equipment Center
Orlando, Florida 32813
(305) 646-4701

Michael D. Sarkovitz
Code: N-2113
Naval Training Equipment Center
Orlando, Florida 32813
(305) 646-4483

Clifford F. Schilling
Code: N-211
Naval Training Equipment Center
Orlando, Florida 32813
(305) 646-5354

Tuesday, May 13/p.m. (cont.)

Wanda Drury
747 Halifax Avenue
Winter Park, Florida 32789
(305) 646-4451

Stella K. Sherman
Code: N-211
Naval Training Equipment Center
Orlando, Florida 32813
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Susan R. Ward
Code: N-211
Naval Training Equipment Center
Orlando, Florida 32813
(305) 646-5753

R. W. Camp
Code: N-2111
Naval Training Equipment Center
Orlando, Florida 32813
(305) 646-5753

W. Scott Wheeler
Code: N-241
Instructional Concepts Branch
Naval Training Equipment Center
Orlando, Florida 32813
(305) 646-4451

Diane Planert
2508 Osage Trail
Fern Park, Florida 32730

William A. Duncan
3621 Hawthorne Lane
Maitland, Florida 32751

PREST DEMONSTRATION(cont.)

Wednesday, May 14/am

Robert H. Ahlers
Code: N-712
Human Factors Laboratory
Naval Training Equipment Center
Orlando, Florida 32813
(305) 646-5130

Arthur S. Blaines
Code: N-712
Human Factors Laboratory
Naval Training Equipment Center
Orlando, Florida 32813
(305) 646-5130

Thursday, May 15/am

Roswell Richardson
U.S. Army - Logistics Systems Support
Activity
DRXLS-LG
Chambersburg, PA 17201
(717) 263-7351

Janice Smith
Service Schools Command
Code: 21K
Navy Training Center
Orlando, Florida 32813
(305) 646-5801

Friday, May 16/pm

CAPT Boyd
Commanding Officer
Navy Training Center
Orlando, Florida 32813
(305)

Friday, May 16/pm(cont.)

LCDR R. L. Fillingham
CNET
Naval Air Station
Pensacola, Florida 32508
(904) 922-4402

Nancy Perry
CNET N-5
Naval Air Station
Pensacola, Florida 32508
(904) 922-4201

Tom Ansbro
CNET N-5 ADDU (TAEG)
Naval Air Station
Pensacola, Florida 32508
(904) 922-4201

Joseph C. Gilliam
CNET N-163
Naval Air Station
Pensacola, Florida 32508
(904) 922-4507

Winnie L. Smith
CNET - CAMPUS Magazine
Naval Air Station
Pensacola, Florida 32508
(904) 922-3613

Calvin Lewis
Control Data Corporation
51 N Street NE
Washington, DC 20002
(202) 789-6534

Joseph N. Small, Jr.
Control Data Corporation
6003 Executive Blvd.
Rockville, Maryland 20852
(301) 468-8345

APPENDIX G

BSLS Reading Objectives

Objectives

The following chart lists the objectives for the reading curriculum. Each cluster is keyed to one or more learning objectives.

STRAND: MAKING NEW WORDS

Estimated Average Time. 43 hours

Bundle	*Cluster Number and Name*	*Objective*
A. Basic Word Building	1 Simple Verb Endings	Given simple familiar words, the learner will be able to form new words by adding inflectional endings *s*, *ed*, and *ing*, and choose the appropriate word in a given sentence
	2 Basic Contractions With Pronouns	Given pairs of simple words, one of which is a pronoun, the learner will be able to form contractions and supply the appropriate contraction in a given sentence.
	3 Abbreviations	Given simple words, the learner will be able to form the abbreviation of the word and supply the appropriate abbreviation in a given sentence.
	4 Easy Compound Words	Given simple, familiar words, the learner will be able to form compound words and supply the appropriate word in a given sentence.
B. More Basic Word Building	5 More Compound Words	Given simple words, the learner will be able to form compound words and locate compound words in sentences.
	6 Verb Endings and the Final *E*	Given root words ending in *e*, the learner will be able to add endings *ing*, *s*, and *ed*, and supply the appropriate word in a given sentence.
	7 Contractions of *Not*	Given simple words and the word *not*, the learner will be able to form contractions and supply the appropriate contraction in a given sentence.

STRAND: MAKING NEW WORDS *(Continued)*

Bundle	*Cluster Number and Name*		*Objective*
C. Complex Word Building	8	Verb Endings After Consonants	Given root words in which the final consonant doubles when adding an ending, the learner will be able to add the endings *ing, ed,* and *s,* and supply the appropriate word in a given sentence.
	9	Verb Endings After *Y*	Given root words ending in *y* in which the *y* changes to *i* when adding an ending, the learner will be able to add the endings *ed* and *y* and supply the appropriate word (from words ending with *ing, ed,* and *s*) in a given sentence.
	10	Word Endings for Comparisons	Given root words, the learner will be able to add the endings *er* and *est,* identify the root word, and supply the appropriate word in a given sentence.
	11	Compound Words with Different Meanings	Given familiar words, the student will form new words, the meanings of which are not obvious by the meanings of the two known words, and locate or supply the appropriate compound word in a given sentence.
	12	Contractions of *Will* and *Are*	Given pairs of words in which one member is a pronoun and the other is the word *will* or *are,* the learner will be able to form contractions and supply the appropriate contractions in a sentence.
D. Prefixes, Suffixes, and Compound Words	13	Noun Endings (Suffixes) —*er, or, ist,* and *ian*	Given a series of root words, the learner will be able to: a. Form new words by adding the suffixes *er* and *or.* b. Form new words by adding the suffixes *ist* and *ian.*
	14	Suffixes—*y, ly,* and *less*	Given a series of root words, the learner will be able to form new words by adding *y, ly,* and *less,* and choose the correct word to complete a sentence.
	15	Special Compound Words	Given root words and words such as *out, down,* or *under,* the learner will be able to form compound words, choose the correct meaning of the new word, and choose the appropriate word to complete a sentence.

STRAND: MAKING NEW WORDS *(Continued)*

Bundle	*Cluster Number and Name*	*Objective*
D. Prefixes, Suffixes, and Compound Words (cont.)	16 Prefixes that Make Words Mean Their Opposites	Given a series of root words and the prefixes *un, dis, im, in,* and *non,* the learner will be able to form new words and choose the correct word to complete a sentence.
E. More Prefixes and Suffixes	17 Noun Endings—*ness, ment, ship,* and *tion*	Given a series of root words and the suffixes *ness, ment, ship,* and *tion,* the learner will be able to form new words and choose the correct word to complete a sentence.
	18 More Suffixes—*able, ous, al,* and *ance*	Given a series of root words and the suffixes *able, ous, al,* and *ance,* the learner will be able to form new words and choose the correct word to complete a sentence.
	19 More Prefixes—*mis, pre,* and *post*	a. Given a series of root words and the prefix *mis,* the learner will be able to form new words and choose the correct word to complete a sentence. b. Given a series of root words and the prefixes *pre* and *post,* the learner will be able to form new words and choose the correct word to complete a sentence.
	20 Using Prefixes *ir* and *il*	Given a series of root words and the prefixes *ir* and *il,* the learner will be able to form new words and choose the correct word to complete the sentence.
F. Prefixes and Suffixes in Context	21 Common Usage of Suffixes—*ful, ous,* and *less*	Given a series of words and the suffixes *ful, ous,* and *less,* the learner will be able to form new words, choose the correct word to complete a sentence, and identify the root word.
	22 Words Ending in *able* and *ible*	Given a series of words and the suffixes *able* and *ible,* the learner will be able to form new words, choose the correct word, choose the correct word to complete a sentence, and identify the root word.
	23 Prefixes That Show Number—*mono, uni, bi,* and *tri*	Given a series of root words and the prefixes *mono, uni, bi,* and *tri,* the learner will be able to form new words, and choose the correct word to complete a sentence.

STRAND: UNDERSTANDING NEW WORDS

Estimated Average Time: 45 hours

Bundle	*Cluster Number and Name*		*Objective*
A. Selecting the Proper Words	1	Predicting Words	Given a sentence in which one word is missing, the learner will be able to use the context of the sentence to supply the appropriate word.
	2	Comparatives	Given a sentence in which the comparative is missing, the learner will be able to use the context of the sentence to supply the appropriate comparative.
	3	Prepositions—*on, at,* and *in*	Given a sentence in which the preposition *on, at,* or *in* is missing, the learner will be able to supply the appropriate preposition.
	4	Pronouns—*I, me, my, mine, we, us,* and *you*	Given a sentence in which the pronoun *I, me, my, mine, we, us,* or *you* is missing, the learner will be able to supply the appropriate pronoun.
	5	More Pronouns	Given a sentence in which the pronoun *he, she, it, his, her, you, him, they,* or *them* is missing, the learner will be able to supply the appropriate pronoun.
B. Choosing the Proper Words	6	Different Words That Are Spelled Alike	Given words like *run, house,* and *lemon* used in several contexts, and several definitions of each word, the learner will be able to choose the correct definitions for each word in each context.
	7	Different Words That Sound Alike	Given homophones in a passage (e.g., *to, too, two, here,* and *hear*), the learner will be able to distinguish between the homophones.
	8	More Prepositions	Given the prepositions *above, below, under,* and *over* and several sentences or paragraphs in which one or more prepositions are missing, the learner will be able to choose the preposition that correctly completes the sentence or paragraph.
	9	Identifying Groups	Given a word that names a group and a word that identifies a member of that group, the learner will be able to distinguish between the two words.

STRAND: UNDERSTANDING NEW WORDS *(Continued)*

Bundle	*Cluster Number and Name*		*Objective*
B. Choosing the Proper Words (cont.)	10	Using Words in Context	Given a sentence in which one word is missing, the learner will be able to use the context of the sentence to supply the appropriate word.
C. Dealing With Confusing Words	11	Synonyms	Given a word and several possible synonyms for that word, the learner will be able to identify one or more synonyms for the specified word.
	12	More Word Grouping	Given a word that names a group and a word that identifies a member of that group, the learner will be able to distinguish between the two words.
	13	Specific Meaning in Context	Given a word used in sentence context and a choice of several possible meanings, the learner will be able to select the meaning of the word that is appropriate to the context.
	14	More Words That Sound Alike	Given a sentence with a missing word and a choice of several homonyms or homophones, the learner will be able to choose the homonym or homophone that is appropriate to the sentence context.
D. Word Meanings	15	Antonyms	Given a word used in a sentence, the learner will be able to identify the antonym of that word.
	16	Figuring Out Meanings of New Words	Given a reading selection in which the meaning of a specified word is implied but not stated, the learner will be able to write the meaning of that word.
	17	Words That Show Cause and Effect	Given a sentence that contains a cause and effect relationship, the learner will be able to identify the word or words that cue that relationship (e.g., *if, then*).
	18	Discovering Word Meanings	Given a word used in sentence context and a choice of several possible meanings, the learner will be able to select the meaning of the word that is appropriate to the context.
E. Applying New Words	19	More Similar-Sounding Words	Given a sentence with a missing word and a choice of several homonyms or homophones, the learner will be able to choose the homonym or homophone that is appropriate to the sentence context.

STRAND: UNDERSTANDING NEW WORDS *(Continued)*

Bundle	*Cluster Number and Name*		*Objective*
E. Applying New Words (cont.)	20	Clues to New Word Meanings	Given a reading selection in which the meaning of a specified word is implied but not stated, the learner will be able to write the meaning of that word.
	21	Idioms	Given an idiom used in sentence context and a choice of several possible meanings, the learner will be able to select the correct meaning for the idiom.
F. Understanding and Using New Words	22	More Words That Are Spelled Alike	Given homographs used in several contexts and several possible meanings, the learner will be able to identify the meaning of the homographs for each context.
	23	Complicated Word Meanings	Given a reading selection in which the meaning of a specified word is implied but not stated, the learner will be able to write the meaning of that word.
	24	More Idioms	Given an idiom used in sentence context and a choice of several possible meanings, the learner will be able to select the correct meaning for the idiom

STRAND: UNDERSTANDING WHAT YOU READ

Estimated Average Time: 50 hours

Bundle	*Cluster Number and Name*		*Objective*
A. Locating Basic Facts	1	Nouns and Pronouns	Given a sentence containing one or more nouns and a pronoun, the learner will be able to identify the noun to which the pronoun is referring.
	2	Following Directions	Given a reading selection that contains simple directions, the learner will be able to follow the directions.
	3	Past and Present Tense	Given a simple sentence, the learner will be able to indicate whether the action in the sentence is in the past or the present.
	4	Forming Sentences	Given several phrases, the learner will be able to select the phrases that go together to form complete sentences.

STRAND: UNDERSTANDING WHAT YOU READ *(Continued)*

Bundle	*Cluster Number and Name*	*Objective*
B. More Basic Facts From Reading	5 Getting Information From Pictures	Given a concept and several pictures, the learner will be able to identify the picture that represents the concept.
	6 Putting Sentences in the Proper Order	Given a series of sentences in random order, the learner will be able to place the sentences in a logical sequence to make a short story.
	7 Getting Ideas From Pictures	Given a picture and several concepts in sentence contexts, the learner will be able to identify the concepts that are represented in the picture.
	8 Past, Present, and Future Tense	Given a simple sentence, the learner will be able to indicate whether the action in the sentence is in the past, present, or future.
C. Understanding the Things You Read	9 Getting the Facts	Given a sentence, paragraph, or short story and questions of who, what, where, when and how about the selection, the learner will be able to read the selection and answer the questions.
	10 Finding What Doesn't Belong	Given a subject and a paragraph or list of items, the learner will be able to delete those sentences or items that do not refer to the subject.
	11 Ordering Main Events	Given a reading selection, the learner will be able to list the order of occurrence of the main events in the selection.
	12 Replacing Nouns With Pronouns	Given a sentence in which more than one noun precedes a pronoun, the learner will be able to show the correct pronoun reference.
D. Remembering What You Read	13 Reading for Information	Given a sentence, paragraph, or short story and factual questions about the selection, the learner will be able to read the selection and answer the questions.
	14 Remembering Facts	Given a sentence, paragraph, or short story and questions about the selection, the learner will be able to read the selection and answer the questions from recall.
	15 Finding the Main Ideas	Given a short selection, the learner will be able to read the selection and state its main idea.

STRAND: UNDERSTANDING WHAT YOU READ *(Continued)*

Bundle	*Cluster Number and Name*		*Objective*
D. Remembering What You Read (cont.)	16	Placing Items in the Proper Sequence	Given a selection, the learner will be able to read the selection and identify its sequence of action.
	17	Topic Sentences	Given a paragraph, the learner will be able to select its topic sentence.
E. Remembering More of What You Read	18	Remembering More Facts	Given a story and questions about the story, the learner will be able to read the selection and answer the questions.
	19	Characters and Events in a Story	Given a story and questions about the characters and events in the story, the learner will be able to read the selection and select specific details.
	20	Remembering Details	Given a story and questions about the story that require recall of details, the learner will be able to read the selection and answer the questions.
	21	Remembering Story Meanings	Given a sentence, paragraph, or short story, the learner will be able to read the selection and identify its literal meaning from recall.
	22	Titles and Topic Sentences	Given a paragraph and several possible titles and topic sentences, the learner will be able to select the correct title and topic sentence for the paragraph.
	23	Supporting Main Ideas With Facts	Given a selection and its main idea, the learner will be able to identify specific details in the selection that support the main idea.
F. Interpreting What You Read	24	Facts Not Directly Stated	Given a selection and questions about the selection that require answers not directly stated in the text, the learner will be able to read the selection and answer the questions.
	25	The Main Idea of the Story	Given a short selection, the learner will be able to state its main idea.
	26	Placing Events in the Proper Order	Given a selection and a randomly ordered list of the main events in the selection, the learner will be able to place the events in sequential order.
	27	Using Evidence to Support Ideas	Given a selection and its main idea, the learner will be able to identify specific details in the selection that support the main idea.

STRAND: THINKING ABOUT WHAT YOU READ

Estimated Average Time: 40 hours

Bundle	*Cluster Number and Name*		*Objective*
A. Understanding Basic Facts	1	What Happened and Why It Happened	Given a sentence or short paragraph, the learner will be able to identify the cause and effect relationship or relationships.
	2	What Happens Next?	Given part of a story and several choices of what might happen next, the learner will be able to select the most appropriate choice.
	3	Descriptive Words	Given a short selection, the learner will be able to identify the descriptive words in the selection.
	4	Possible Sentences	Given a short sentence, the learner will be able to determine whether the action in the sentence is possible or impossible.
	5	Predicting Endings	Given a sentence with no ending, the learner will be able to predict a word or phrase to end the sentence.
B. Understanding More of What You Read	6	Why and What	Given a selection, the learner will be able to identify the cause and effect relationships.
	7	How Does It End?	Given part of a story and several choices of what might happen next, the learner will be able to select the most appropriate choice.
	8	Words That Describe	Given a story, the learner will be able to identify the descriptive words in the story.
	9	Describing Emotions	Given a sentence that conveys an emotion, the learner will be able to describe the emotion conveyed.
C. Describers and Conclusions	10	Describing Reactions	Given a reading selection in which a character reacts to a situation, and a choice of several words or phrases to describe that character's reaction, the learner will be able to select the word(s) or phrase(s) that most accurately describe the reaction.
	11	Exaggeration	Given a reading selection, the learner will be able to identify those phrases and sentences that are exaggerations.
	12	Drawing Conclusions	Given a reading selection in which the conclusion is missing, the learner will be able to make a conclusion.

STRAND: THINKING ABOUT WHAT YOU READ *(Continued)*

Bundle	*Cluster Number and Name*		*Objective*
C. Describers and Conclusions (cont.)	13	Words and Expressions	Given a figurative expression and a choice of words or phrases to describe the expression, the learner will be able to choose the word or phrase that most accurately describes the expression.
D. Different Types of Describers and Conclusions	14	Describing How a Person Looks	Given a reading selection, the learner will be able to identify those words or phrases in the selection that describe the character's physical appearance.
	15	Telling How a Person Looks and Feels	Given a reading selection, the learner will be able to identify those words or phrases in the selection that describe the character's feelings.
	16	Cause and Effect	Given a reading selection, the learner will be able to identify the cause and effect relationship or relationships in the selection.
	17	Making Predictions	Given part of a story and a choice of several things that might happen next in the story, the learner will be able to choose what will happen next using events and clues to support the prediction.
	18	Identifying Similes	Given a sentence, the learner will be able to identify the simile or similes in the sentence.
E. Understanding the Whole Story	19	Describers of Reaction	Given a reading selection in which a character reacts to a situation, and a choice of several words or phrases to describe that character's reaction, the learner will be able to select the word(s) or phrase(s) that most accurately describe the reaction.
	20	Finding the Plot of a Story	Given a reading selection and a choice of a sentence or sentences to describe the plot, the learner will be able to select the sentence or sentences that most accurately describe the plot.
	21	Forming and Identifying Similes	a. Given a prose passage, the learner will be able to identify the similes in the passage. b. Given a word, the learner will be able to supply a simile for that word.

STRAND: THINKING ABOUT WHAT YOU READ *(Continued)*

Bundle	*Cluster Number and Name*		*Objective*
E. Understanding the Whole Story (cont.)	22	Personal Characteristics	Given a reading selection, the learner will be able to select words or phrases in the selection that describe traits of specific characters.

STRAND: JUDGING WHAT YOU READ

Estimated Average Time: 29 hours

Bundle	*Cluster Number and Name*		*Objective*
A. Difference Between Fact and Non-Fact	1	Fact or Fantasy?	Given a reading selection, the learner will be able to determine whether the selection is fact or fantasy.
	2	Fact or Opinion?	Given a statement, the learner will be able to determine whether the statement is fact or opinion.
B. The Purpose of the Author	3	What's the Purpose?	Given a short selection, the learner will be able to select words or phrases from the selection that indicate the author's purpose.
	4	Real Life or Fantasy?	Given two reading selections, the learner will be able to determine which deals with real life and which deals with fantasy.
C. Evaluating What You Read	5	Information or Entertainment?	Given a reading selection, the learner will be able to identify the author's purpose as informative or entertaining and give evidence to support that purpose.
	6	Making Judgments	Given a reading selection and a conclusion about the selection, the learner will be able to select details from the selection that support the conclusion.
	7	Describing Characters	Given two short stories, the learner will be able to choose words that describe how the characters are alike and how they are different.
D. The Author's Purpose and Your Conclusions	8	What Evidence Is There?	Given a reading selection, the learner will be able to state the author's purpose and list phrases from the selection that support that purpose.

STRAND: JUDGING WHAT YOU READ *(Continued)*

Bundle	*Cluster Number and Name*		*Objective*
D. The Author's Purpose and Your Conclusions (cont.)	9	What's Your Conclusion?	Given an incomplete story and a choice of several conclusions, the learner will be able to select the appropriate conclusion.
	10	What is Relevant?	Given a topic and a choice of words, phrases, or sentences, the learner will be able to choose the word(s), phrase(s) or sentence(s) that are relevant to the topic.
	11	Working With Facts and Opinions	Given a statement, the learner will be able to determine whether the statement is fact or opinion.
E. Separating Facts From Opinions	12	Supporting the Purpose	Given a reading selection, the learner will be able to state the author's purpose and give evidence to support that purpose.
	13	Headlines	Given a newspaper article and several headlines, the learner will be able to select the headline that is appropriate to the article.
	14	Stating Fact or Opinion	Given a statement, the learner will be able to determine whether the statement is fact or opinion.
	15	Different or Equal Statements	Given several sentences, the learner will be able to determine whether the ideas in the sentences are the same or different.

APPENDIX H

Sample Navy-Related Supplementary Reading Materials

Examples from:

- Understanding What You Read (Main Idea)
- Thinking About What You Read (Making Predictions)
- Judging What You Read (What's Your Conclusion)

Main Idea

Exercise 1

Do you understand the importance of freedom of the seas ? As you read the paragraph below pay close attention to what is the most important idea.

Freedom of the seas is acknowledged by all nations under international law. In time of peace the seas belong to everyone. When nations are at war, they cross the sea at their own risk and neutral ships as well as enemy ships may be sunk to deny vital supplies. Freedom of the seas is very important to the U.S. It enables us to trade freely with other nations, importing raw materials as well as exporting finished products. It also allows us use of the seas for peacetime military operations. During time of war, the powerful nation is the one able to enforce its rights to use the oceans to transport supplies, troops, and give support to allies as well as combat operations.

1. Put a check beside a good title for the above paragraph.

_____ a. Freedom of All Nations

_____ b. Freedom of the United States

_____ c. Freedom of the Seas

2. Check the main idea.

_____ a. Freedom of the seas exists even when nations are at war.

_____ b. Freedom of the seas is very important to U.S. trade and military operations.

_____ c. Freedom of the seas is acknowledged by few nations under international law.

Main Idea

Exercise 2

What do you know about damage control ? As you read the following paragraph, try to figure out the main idea.

The purpose of damage control is to prevent, reduce, and/or correct damage to a ship and its equipment. Damage control provides preservation of stability and watertight integrity; control of fire; control of flooding; repair of structural damage; countermeasures in the event of a nuclear, biological, or chemical attack; and the reporting of any and all discrepancies. When damage has occured, the ship's offensive and defensive capabilities must be restored. Damage control central is the area responsible for collecting and comparing reports from the various repair stations in order to determine the condition of the ship and the corrective action to be taken.

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1. Check the main idea.

   _____ a. Damage control is responsible for preventing damage from occurring and correcting damage that has occurred.

   _____ b. Damage control is responsible for a ship's watertight integrity and a few watertight compartments.

   _____ c. Damage control is responsible for cleaning the ship's decks and preparing the ship for annual painting.

2. Damage control central....

   _____ a. collects and compares reports from weather stations.

   _____ b. collects and compares reports from piloting stations.

   _____ c. collects and compares reports from repair stations.

Main Idea

Exercise 3

What do you know about the Operational Security Program ? Read the paragraph to find the main idea.

The Operational Security (OPSEC) program was designed to develop and put into practice whatever actions necessary and appropriate to deny the enemy information concerning planned, ongoing, and completed Navy operations. There are four main parts of the OPSEC program: communication security electronic security, operational information security, and physical security. Communications security is concerned with preventing unauthorized persons from obtaining valuable information from communications equipment, transmissions, or documents. Electronic security is concerned with unauthorized obtainment of information from radar or sonar devices which really aren't used to communicate. Operational information security protects such things as plans, maps, photographs, unit movements, and locations. Physical security is established to prevent access to buildings, equipment, etc., or sabotage of these places or personnel.

1. Put a check beside a good title for the above paragraph

_____ a. The Four Main Parts of Communication Security

_____ b. The Four Main Parts of the Operational Security Program

_____ c. The Four Main Parts of Electronic Security

2. Check the main idea.

_____ a. OPSEC has four main parts designed to damage and destroy normal operational functions of the Navy.

_____ b. OPSEC has four main parts designed to encourage unauthorized persons to obtain valuable national information.

_____ c. OPSEC has four main parts designed to develop and put into practice any necessary actions to deny the enemy important Naval information.

Main Idea

Exercise 4

What do you know about the Uniform Code of Military Justice ?
Read the following paragraphs to get the facts and find the main idea.

In military life "ignorance of the law is no excuse." When you enlisted in the Navy, you signed an agreement to abide by the laws and regulations of the Navy. Abiding by these laws and regulations will help you avoid trouble and improve Navy life for all hands. The Uniform Code of Military Justice (UCMJ) is the basic code that standardizes the disciplinary laws and regulations of the Navy. The UCMJ was enacted by Congress and approved by President Truman during the Korean War in 1951.

1. Check the main idea.

_____ a. People in the Navy have an excuse for ignorance of the laws and regulations standardized by the UCMJ.

_____ b. People in the Navy have the approval of President Truman not to abide by laws and regulations standardized by the UCMJ.

_____ c. People in the Navy must abide by the laws and regulations standardized by the UCMJ.

Continue reading to find out more about UCMJ and answer the questions that follow on the next page.

Under Article 2 of the UCMJ is a listing of who is subject to the provisions of the Code. The following persons are included: members of a regular branch of the armed forces (including recruits and those personnel awaiting discharge), reservists on active duty, retired personnel, members of the Fleet Reserve, persons in custody serving sentence, and prisoners of war. The basic thing to remember is that each of you is subject to the UCMJ throughout your entire association with the Navy.

Main Idea

Exercise 4 (Cont.)

2. Put a check beside a good title for the paragraph.

   _____ a. Persons Subject to the UCMJ

   _____ b. Members of the Fleet Reserve

   _____ c. Reservists on Active Duty

3. Check the main idea.

   _____ a. The armed forces lists who is subject to the provisions of the Code.

   _____ b. Article 2 of the UCMJ lists who is subject to the provisions of the Code.

   _____ c. Fleet Reserve lists who is subject to the provisions of the Code.

Making Predictions

Exercise 1

Suppose you are returning from leave. You miss your train and are one hour late in reporting to your petty officer. What will happen? Use the information in the paragraph below to answer the question.

Article 86 of the UCMJ covers every case in which a member of the armed forces is absent from duty through his/her own fault. Article 86 states "Any member of the armed forces who, without authority: fails to go to his/her appointed place of duty at the time prescribed; leaves an assigned place of duty before authorized; or goes from or does not return at the proper time from leave or liberty shall be punished as a court-martial may direct.

1. If the commanding officer decides this offense deserves punishment . . .

   _____ a. the military police may be ordered.

   _____ b. a meritorious mast may be ordered.

   _____ c. a court-martial may be ordered.

Making Predictions

Exercise 2

Suppose it is time for the evening colors ceremony. You are dressed in uniform but not in ranks. How should you render honors? Use the information in the paragraph below to answer the question.

During colors, everyone within sight or hearing renders honors. When in uniform and in ranks, you will be called to attention and the person in charge of the ranks will salute. If you are in uniform but not in ranks, come to attention, face the colors, and give the hand salute. When wearing civilian clothes or athletic gear, face the colors at attention and salute by placing your right hand over your heart. If you are wearing a hat, however, remove it and hold it in your right hand over your heart. When you are riding in a vehicle, stop and sit at attention, but do not salute. When you are a passenger in a boat, remain seated at attention; the boat officer or coxswain will salute for the boat.

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1. To render honors in this situation, you should . . .

    _____ a. sit at attention.

    _____ b. face the colors.

    _____ c. let the person in charge salute.

Suppose you are a passenger in a boat and you hear the morning colors attention sounded. Use the information in the paragraph above to answer the question.

2. To render honors in this situation, you should . . .

    _____ a. face the colors.

    _____ b. stand up and salute.

    _____ c. let the boat officer or coxswain salute for the boat.

Exercise 3

What do you know about Navy Regulations? Read the paragraph, then answer the questions.

Navy Regulations outlines the organizational structure of the Department of the Navy and describes the principles and policies that govern the Navy. Article 0739 describes the responsibility of the commanding officer in actions with the enemy. Subordinate officers must be given all necessary information on battle plans and operations so they can continue should the commanding officer be killed. The executive officer must be available to assist the commanding officer but must also be placed in a position to easily assume command should the commanding officer be killed. During battle, the commanding officer's first priority is to fight the enemy as best able and not break off action unless specifically told to do so by higher authority. After a battle, the commanding officer must see to it that damage is repaired and make every effort to return the ship to battle readiness. Finally, the commanding officer must make detailed accurate reports to superiors.

Suppose the commanding officer of a ship is killed during a battle. What should happen? Answer the following questions using the information in Navy Regulation 0739 given above.

1. What kinds of information must subordinate officers be given?

_____ a. all individual communications with the commanding officer

_____ b. all necessary information on battle plans and operations

_____ c. all names of personnel to be recommended for advancement

Making Predictions

Exercise 3 (Cont.)

2. Who assumes command?

_____ a. the executive officer

_____ b. the warrant officer

_____ c. the chief petty officer

Suppose a ship is engaged in battle and is under heavy attack. Use the information in Navy Regulation 0739 to answer these questions. tions.

3. Write a T for True or an F for False beside each statement.

_____ a. The commanding officer may decide to stop fighting.

_____ b. The commanding officer must continue to fight the enemy.

_____ c. The commanding officer may break off action if told so by higher authority.

Suppose a ship is damaged in battle. Use the information in Navy Regulation 0739 to answer these questions.

4. It is the responsibility of the commanding officer to see to it that . . .

_____ a. damage is repaired.

_____ b. the ship is battle ready.

_____ c. both of the above

5. Who must make detailed reports to superiors?

____

Exercise 4

Do you know how to prevent accidents? Read the paragraphs then answer the questions.

An accident is defined as "any unplanned or unintended event, no matter how minor or serious it may be, that interrupts or interferes with the orderly sequence of actions and results in personal injury and/or property damage." To most people, accidents mean personal injury. However, research has shown that for every accident resulting in a person actually being injured, 300 accidents producing equipment damage can be expected. Most accidents can be prevented if care is used to eliminate unsafe acts and conditions.

In using electrical equipment care must be taken to avoid injury or death from electrical shock, prevent or reduce fire hazards, and prevent or reduce damage to equipment.

There are many safety precautions you should observe prior to using electrical equipment. Never work alone. Be qualified and recommended to work on equipment. Make sure that the equipment you use has safety instructions on it and that you have read them. Be trained in first aid to treat electrical shock. Have all portable equipment checked by the electrical shop before you use it. If you are working in machinery spaces, make sure all light fixtures are enclosed. When using power tools, you should first check wiring for frayed or loose ends. Finally, make sure that the plug on any electrical cord is of the three prong, grounded type.

Making Predictions (Cont.)

Exercise 4

1. Suppose you have an accident. Which of the following is more likely to happen?

   _____ a. You will be personally injured.

   _____ b. Your equipment will be damaged.

   _____ c. No one will be hurt nor anything damaged.

2. Suppose you are working where the light fixtures are not enclosed. Which of the following could cause the most harm?

   _____ a. Explosive gases may come into contact with hot bulbs and be a dangerous fire hazard.

   _____ b. The light bulb may burn out and cause you to work in the dark.

   _____ c. The wiring in the light fixture may be loose and cause the light bulb to flicker.

3. Suppose you forget to check wiring for frayed or loose ends. Which of the following could possibly happen?

   _____ a. Frayed wiring does not have any effect on safety as long as the electrical division knows about it.

   _____ b. Loose ends in electrical wire may allow you to unplug portable equipment more easily.

   _____ c. Contact with bare wire while standing on a steel deck could cause severe shock or death.

Exercise 1

Do you know how to tie a whipping? As you read, look for clues that will help you choose the best conclusion. Answer the questions that follow.

In the Navy, sailors generally refer to fiber rope as line and to wire rope as rope or wire. Whippings are bindings on the ends of rope that keep the rope from unwrapping and fraying at the ends. On line, whippings are made with a cord, such as sail twine, or with marline, two-strand, left-lay, tarred hemp. The ends of all line must be whipped because it is frequently necessary to pass the ends through rings and padeyes and to thread them through blocks. Frayed line ends are unsightly, unseamanlike, and waste many feet of line. Knots or backsplices in the end of a line are not allowed; nor are friction tape or wire whippings. Knots and backsplices may jamb in a block; friction tape will not hold for long; and wire may tear a line handler's hands.

An excellent whipping can be made without using a needle if you follow this procedure. First lay the end of the whipping along the line, bind it down with a couple of turns, and snug up the edges. Then lay the other end on in an opposite direction with the body portion of the shipping, as you continue with several more turns from the bight of the whipping. Snug up the edges and cut off the twine close to the line. This type of whipping is a temporary one. If the line is to be used frequently, a permanent whipping should be used.

1. Why do you tie whippings on the ends of rope?

____

What's Your Conclusion

Exercise 1 (Cont.)

2. Which of the following may be used to make whippings?

_____ a. backsplices

_____ b. friction tape

_____ c. sail twine

3. Why is it important not to make wire whippings?

____

4. Why do you think a permanent whipping must be made for frequently used line?

_____ a. A temporary whipping may come loose if it is used over and over again.

_____ b. A permanent whipping is more secure and can last if it used over and over again.

_____ c. both of the above

Exercise 2

Do you know what "leave" is in the Navy? As you read, look for clues in the story that will help you choose the best conclusion. Answer the questions that follow.

The Navy gives its members paid vacations. In the Navy this time is referred to as "leave". Leave is an authorized absence from your place of duty for an extended period of time and is chargeable to your leave record. There are four types of leave which you may be granted: earned, advanced, emergency, and excess.

Earned leave is the amount of time credited to you "on the books" at any given date. On a yearly basis you earn 30 days of leave at the rate of 2½ days per month. As your earned leave accumulates, it can be carried over from one working year to the next. However, you may not have more than 60 days on the books during your career and any left over that amount at the end of the year are lost.

If you take more leave than you are entitled to, then you are taking advanced leave. This is usually granted to you prior to your serving the required time on active duty. On the books this amount of time you may owe is recorded as minus leave.

Excess leave is the amount you go over what you've earned along with any advanced leave you may have been granted. Excess leave is granted when you do not have enough active duty time left in your commission to earn it back. These days must be repaid out of your salary.

Emergency leave is granted to you when you must immediately attend to important personal matters which no one else can handle. Emergency leave situations requiring your immediate presence must be verified by the Red Cross. You may be granted emergency leave for reasons such as death in your immediate family, an accident or serious illness in your family which causes unusual responsibilities needing your immediate attention, or when your return will help the welfare of someone in your immediate family.

What's Your Conclusion

Exercise 2 (Cont.)

1. Why does the Navy give its members "leave"?

   _____ a. so they may have vacations

   _____ b. so they may be absent from duty for a long time

   _____ c. both a and b

2. Why should you make sure you have no more than 60 days leave on the books at the end of a year?

   ____

3. What do advanced leave and excess leave have in common?

   _____ a. Both refer to an amount of time that you have not earned.

   _____ b. Both refer to an amount of time that you have already earned.

   _____ c. Both refer to an amount of time that you earn each month.

4. What if something happens in your family that causes you to request permission to go home immediately?

   _____ a. Advanced leave may be granted.

   _____ b. Emergency leave may be granted.

   _____ c. Excess leave may be granted.

Exercise 3

Do you know how to treat a victim of shock? As you read, look for clues in the paragraphs that will help you choose the best conclusions. Answer the questions that follow.

Shock is a condition in which a person's blood circulation is seriously disturbed. Crushed or fractured bones, burns, heavy bleeding, and live electricity can all cause shock. The shock may be slight or it may be severe enough to cause death. It is, therefore, very important for all Navy personnel to learn the symptoms of shock and how to treat the victim.

If you've ever hit your finger with a hammer and felt, in addition to the pain, weak, dizzy, and nauseous, then you have experienced a mild form of shock. In this example the symptoms appeared immediately after the injury, but sometimes they may not show up for several hours.

A person in shock will usually have a weak but rapid pulse or you may feel no pulse at all. The victim's breathing may be normal but more than likely it is rapid or done with great difficulty. The victim's skin becomes pale, feels cold and clammy to the touch, and there is usually a lot of sweating. The hands and feet are usually cold. The eyes may look dull and lifeless and the dark center, which is called the pupil, may get very big. The victim may feel nauseous, weak, dizzy, restless, and frightened or anxious. As the victim goes deeper into shock, all of these symptoms gradually disappear and the victim becomes unconscious.

The important point to remember is that all victims of a serious injury will probably develop some degree of shock, not necessarily all of the ones mentioned. Don't wait for the symptoms to appear before beginning treatment. Prompt treatment may prevent the occurrence of shock or, if it has already developed, prevent it from reaching a critical point.

Lay the victim on his/her back, with the feet about 12 inches higher than the head. Chest or head injuries require the head also to be slightly elevated. If the victim is vomiting or has facial injuries that may cause bleeding into the throat, the victim should be placed on his/her stomach with the head turned to one side and lower than the feet. The victim must be kept warm so use blankets if necessary, but don't use heating pads or hot water bottles because this causes blood to flow closer to the surface skin instead of to the brain. Be careful giving the victim liquids and never give alcohol. If medical help is available shortly, give no liquids at all unless the victim has been seriously burned.

What's Your Conclusion

Exercise 3 (Cont.)

1. Why is it important for you to know how to treat a person in shock?

   ____

2. What is different about a person's eyes in shock?

   ____

3. Why is it important to treat a seriously injured person for shock?

   _____ a. Prompt treatment may prevent shock from occurring.

   _____ b. Prompt treatment may prevent shock from reaching a critical point.

   _____ c. Prompt treatment may allow shock to become deeper.

   _____ d. both a and b

4. Why do you think a victim should be placed on his/her stomach if vomitting?

   _____ a. to prevent the victim from choking

   _____ b. to prevent the victim from walking

   _____ c. to prevent the victim from talking

5. Write a T for True or an F for False beside each statement.

   _____ a. You may be able to save a person's life with prompt treatment for shock.

   _____ b. A victim of shock will always develop nausea, weakness, dizziness, anxiety, and fright.

   _____ c. Alcohol is a good liquid to give a victim of shock.

   _____ d. Blankets are the best method to use to keep a shock victim warm.

APPENDIX I

INTRODUCTION TO STUDY SKILLS

Explain what will be taught in study skills.

Lesson I: How to get ready
(for reading - preview)
(for lectures - e.o.s)
for both, getting questions
Lesson II: How to get information
table of contents
index
looking for key words
Lessons III, IV, and V: How to take notes and how to listen effectively
Lesson VI: How to study for and take tests

Explain how study skills lesson will be taught. Give recruit a copy of the Study Skill Program sheet which the recruit can use to keep track of his/her progress and to know what activity should be done next.

Tell the recruit that you will give the introduction to the lessons. (If there is an Intro. box to be checked, the recruit must see the instructor for the introduction.)

The recruit should not do any of the pretests during Study Skills. If (s)he does, it will just be a waste of his/her time. After the introduction, the recruit should do the tutorial, then drill & practice for that lesson. If the recruits has any questions about the on-line material, (s)he should ask the instructor for help rather than just wasting his/her time failing the materials.

The recruit must get the application activities from the instructor.

The progress check is to be done only after the application activity has been checked by the instructor.

Review checks will be done after each group of 2 clusters.

Listening will be taught off-line in conjunction with notetaking lessons (Clusters 3-5).

A mini-lecture will be given to provde practice in notetaking and listening.

After the recruit has completed the study skill strand on line, (s)he will be asked to use the reviewing and testtaking skills taught in Cluster 6 to study for and take a quiz on the mini-lecture.

Finally, using all skills taught in the Study Skills strand, the recruit will use Enabling Objectives, a Reading Assignment, and a Taped Lecture to gain information, organize and study it, then take a quiz. The recruit must have a score of 80% on this quiz to return to regular recruit training.

APPENDIX J

Selected Displays from On-Line Study Skills Instruction, Drill and Practice, and Testing

Examples of:

- Tutorial
- Drill and Practice
- Progress Check

from Cluster 6, Reviewing and Studying for Tests

REVIEWING AND STUDYING

FOR TESTS

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Press NEXT to continue.

BEFORE THE TEST

This lesson is going to begin with a big DO and a DON'T.

DO take a few minutes every day or every few days to review the information that you must learn.

DON'T try to learn everything the morning of the test, or even the night before.

Press NEXT to continue or BACK to review.

You should review information which will be covered on tests ...

1. only just before the test
2. every few days

Type a number. ≫

Press BACK to review.

Look back over your reading assignments

Look at the headings.

Do you remember what information was presented under each heading? Make up some questions to test yourself on that information.

Look at any special markings within paragraphs like words in darker type or italics, or numbered lists. Make up some questions on that information.

Look at the pictures. Ask yourself some questions to test your knowledge of the information presented in the pictures.

Press NEXT to continue.

Some people prefer to study alone, asking and answering their own questions.

But others like to get someone to study with them. If you study with others:

- Let them test you by asking the questions you have collected.
- See if they can answer your questions.
- Let them ask you the questions they've developed. (They might have some good ones you haven't thought of.)

Press NEXT to continue.

So that you will know what to expect when you actually take the test, try to find out:

- what the test will look like
- how many questions there will be
- how much time you will have

If you know how many questions there will be and how much time you will have, you can figure out how fast you'll have to work.

EXAMPLE: $\frac{\text{50 questions}}{\text{25 minutes}}$ = 2 questions per minute

By dividing the number of questions on the test by the amount of time you will have to complete the test, you can get a good idea of how long to spend on each question.

Press NEXT to continue or BACK to review.

What should you do so you'll know what to expect when you go to take the test?

1. Ask what the test will look like.
2. Ask how many questions there will be.
3. Ask how much time you'll have to work.
4. Ask all the above questions.

Type a number. ≫

Press BACK to review.

PRACTICE QUESTIONS

Now that you know how to prepare for and take a test, you will have a chance to practice answering questions that are like the questions on military tests.

For each practice question, you will be given the information you need to answer correctly.

On the real tests, of course, your instructors are trying to find out how much you know, so this information must already be in your head.

Press NEXT to continue.

In 1907 President Theodore Roosevelt ordered the bulk of U.S. sea power to sail around the world. This two-year cruise consisted of 16 battleships and became known as the Great White Fleet. It was designed to impress the world, particularly the Japanese (who were posing a growing threat in the Pacific), with the fact that the U.S. Navy was second in strength only to that of Great Britain.

In 1907, President Theodore Roosevelt showed the world the extent of U.S. sea power by ordering a two-year cruise of...

1. the USS Birmingham
2. the Great White Fleet
3. the Great Circle Route
4. the Bonhomme Richard

Type a number. ≫

Press BACK to review.

Incentive pay is given for performance of hazardous duties, such as aviation duty, submarine duty, parachute jump, demolition duty, or flight deck duty.

When is "incentive pay" given?

1. for performance of volunteer services
2. for performance of certain duties involving adverse working conditions
3. for performance of hazardous duties
4. for retention of enlisted personnel

Type a number. »

Press BACK to review.

The 5 basic Departments aboard ship are Operations, Navigation, Weapons/Deck, Engineering, and Supply.

Which of the following is not a basic department aboard ship?

1. Operations
2. Aviation
3. Navigation
4. Engineering and Supply

Type a number. ≫

Press BACK to review.

You know how to get ready for a test:

- Figure out what questions you should be able to answer.
- Practice answering these questions.
- Review your reading assignments and your notes.

You know what to do when you take the test:

- Plan your time.
- Read carefully.
- Guess if you're not sure.
- Check your answers.

You know what to do. You know what to expect. Now it's up to you.

GOOD LUCK!

Press NEXT to continue.

Basic
Reading
Skills

DRILL & PRACTICE

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CLUSTER 6

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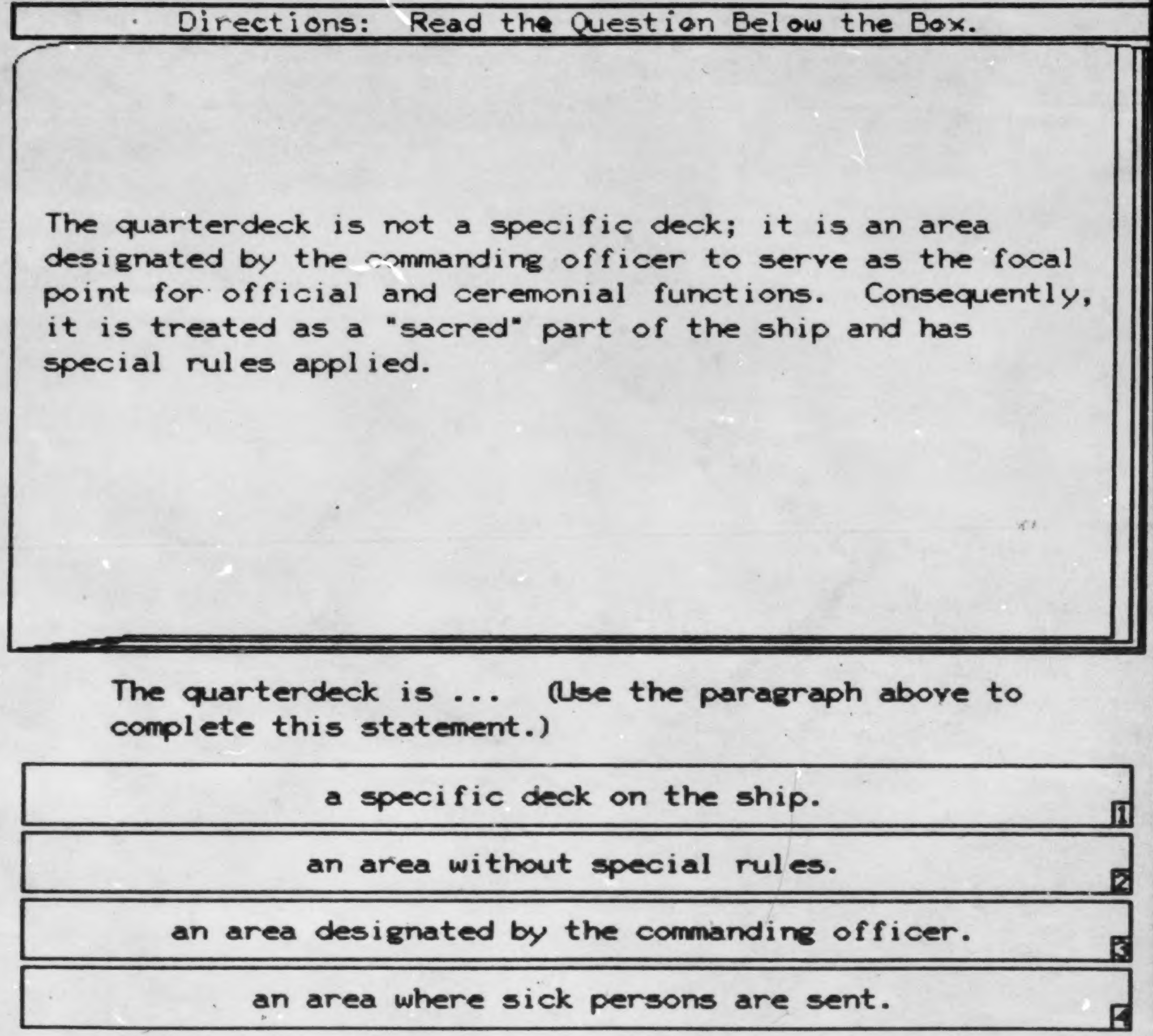


Directions: Read the Question Below the Box.

The quarterdeck is not a specific deck; it is an area designated by the commanding officer to serve as the focal point for official and ceremonial functions. Consequently, it is treated as a "sacred" part of the ship and has special rules applied.

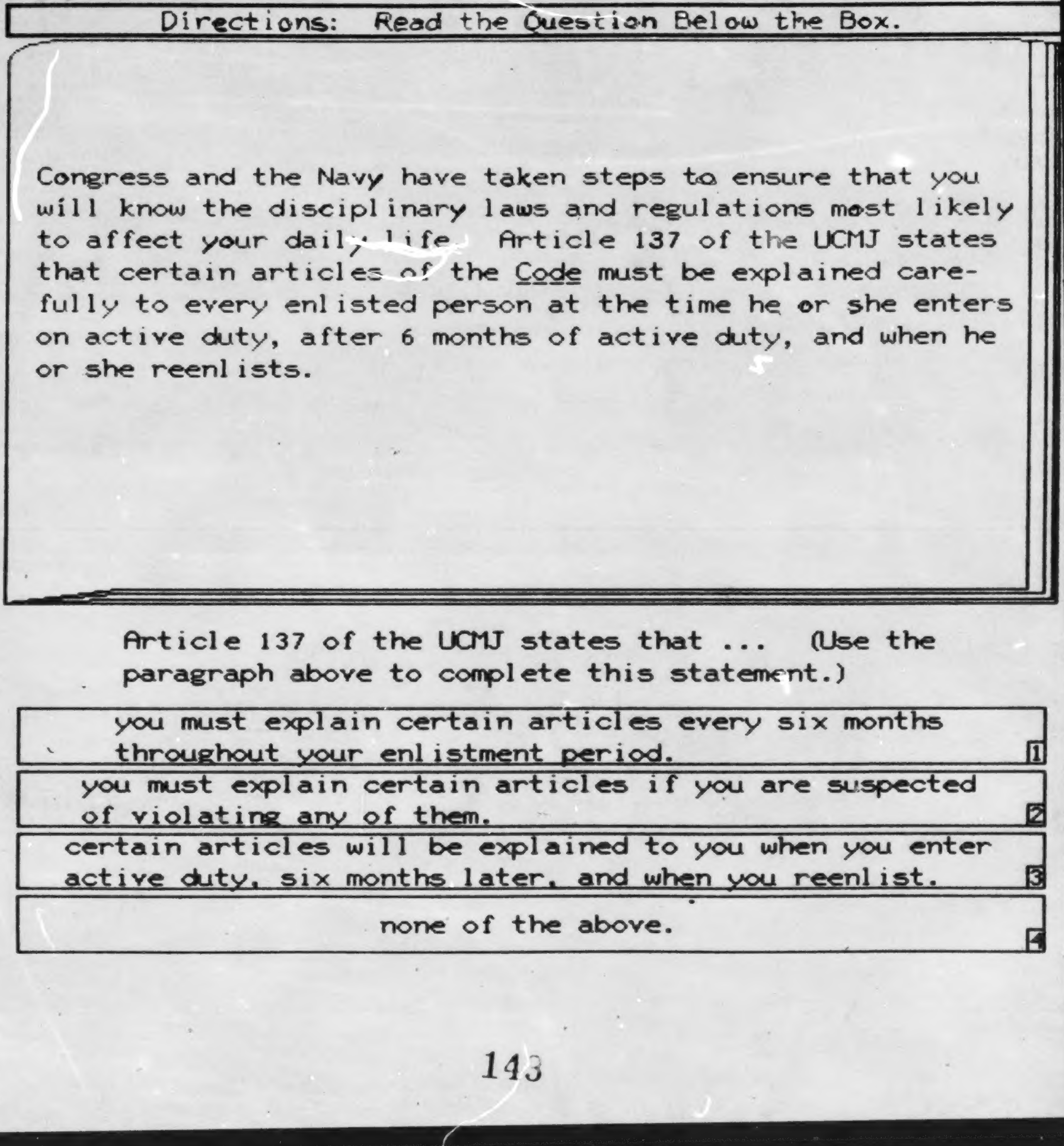
The quarterdeck is ... (Use the paragraph above to complete this statement.)

a specific deck on the ship. 1

an area without special rules. 2

an area designated by the commanding officer. 3

an area where sick persons are sent. 4



Directions: Read the Question Below the Box.

Congress and the Navy have taken steps to ensure that you will know the disciplinary laws and regulations most likely to affect your daily life. Article 137 of the UCMJ states that certain articles of the Code must be explained carefully to every enlisted person at the time he or she enters on active duty, after 6 months of active duty, and when he or she reenlists.

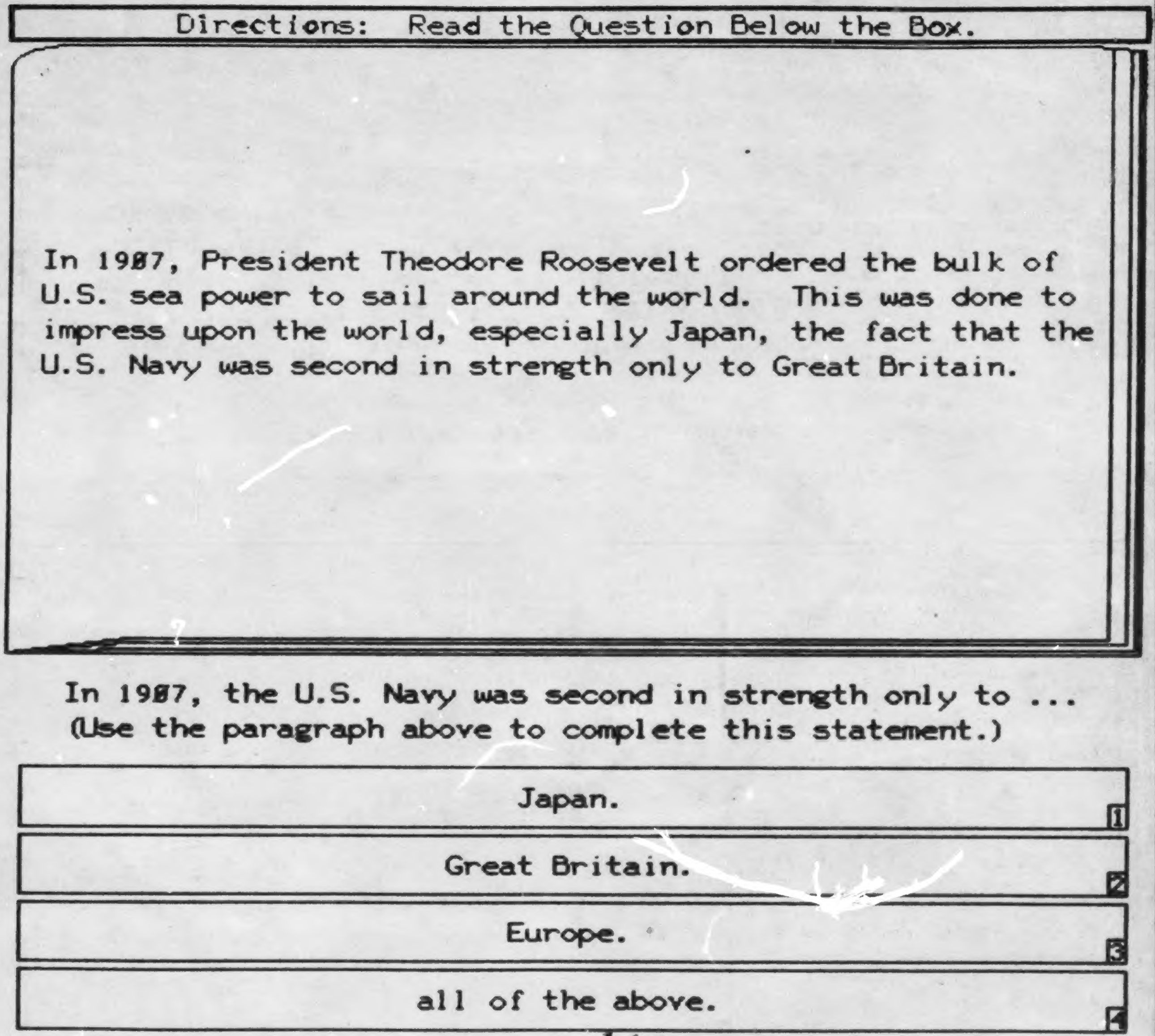
Article 137 of the UCMJ states that ... (Use the paragraph above to complete this statement.)

you must explain certain articles every six months throughout your enlistment period. 1

you must explain certain articles if you are suspected of violating any of them. 2

certain articles will be explained to you when you enter active duty, six months later, and when you reenlist. 3

none of the above. 4



Directions: Read the Question Below the Box.

In 1907, President Theodore Roosevelt ordered the bulk of U.S. sea power to sail around the world. This was done to impress upon the world, especially Japan, the fact that the U.S. Navy was second in strength only to Great Britain.

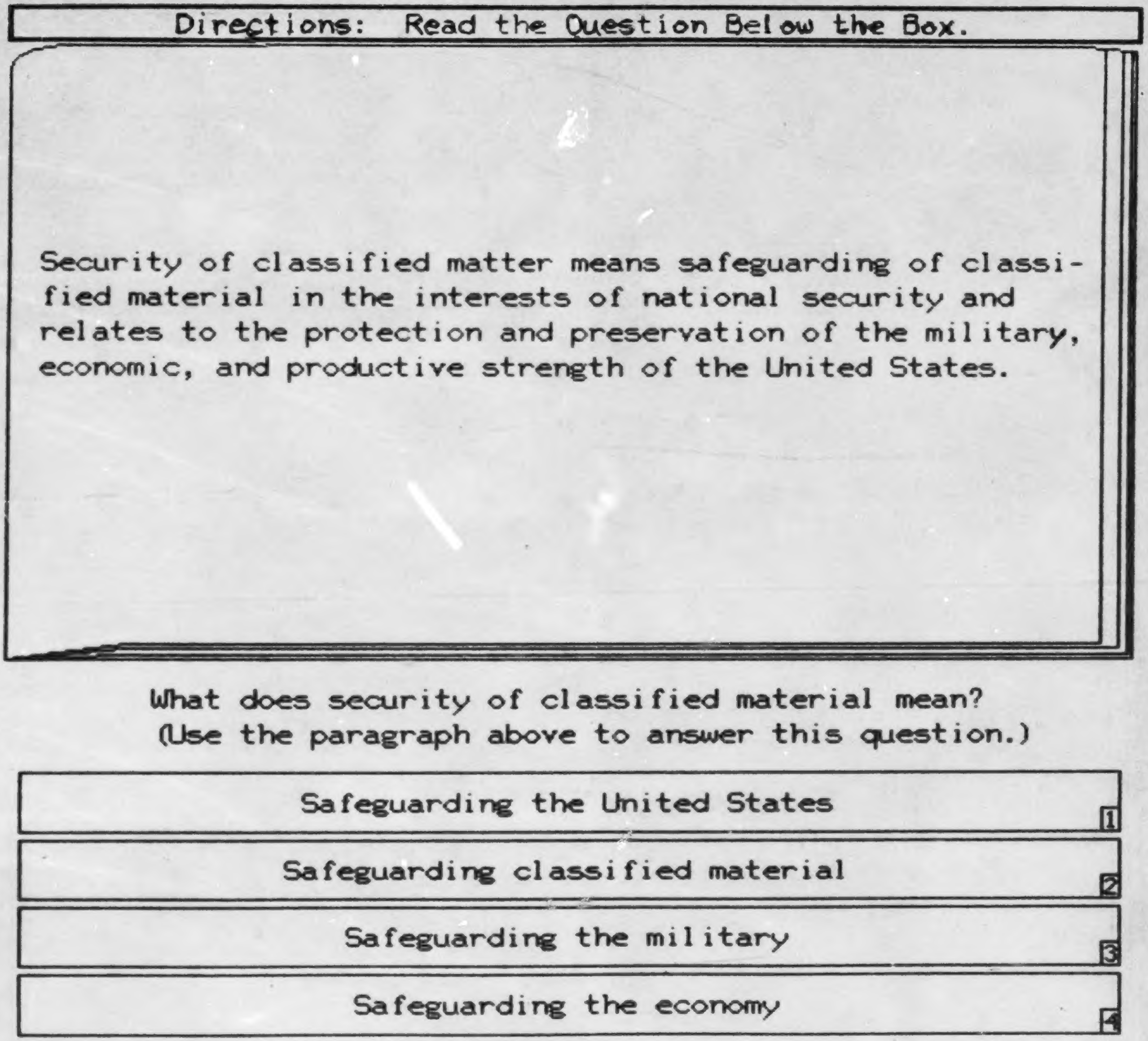
In 1907, the U.S. Navy was second in strength only to ...
(Use the paragraph above to complete this statement.)

Japan. 1

Great Britain. 2

Europe. 3

all of the above. 4



Directions: Read the Question Below the Box.

Security of classified matter means safeguarding of classified material in the interests of national security and relates to the protection and preservation of the military, economic, and productive strength of the United States.

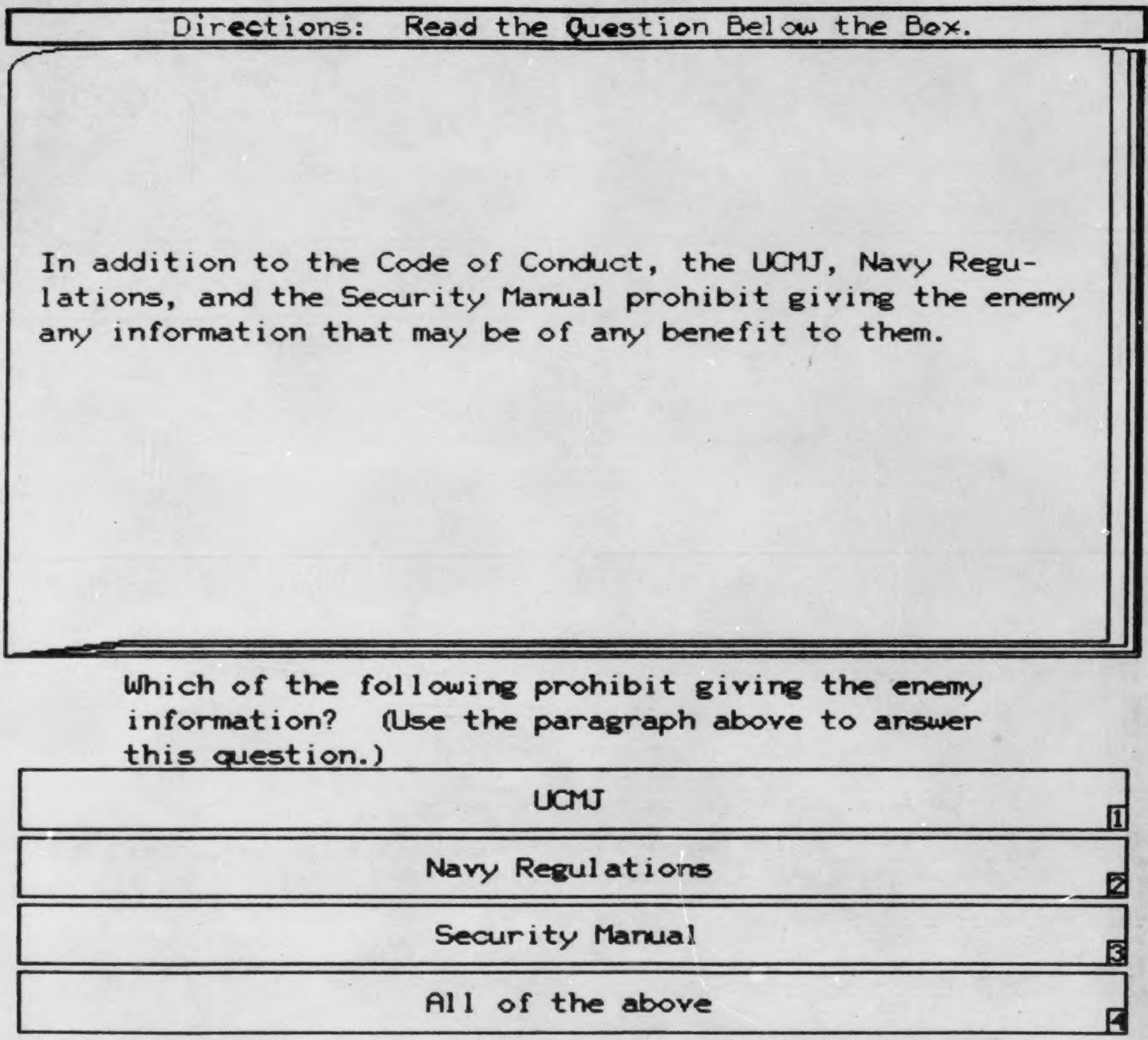
What does security of classified material mean?
(Use the paragraph above to answer this question.)

Safeguarding the United States 1

Safeguarding classified material 2

Safeguarding the military 3

Safeguarding the economy 4



Directions: Read the Question Below the Box.

In addition to the Code of Conduct, the UCMJ, Navy Regulations, and the Security Manual prohibit giving the enemy any information that may be of any benefit to them.

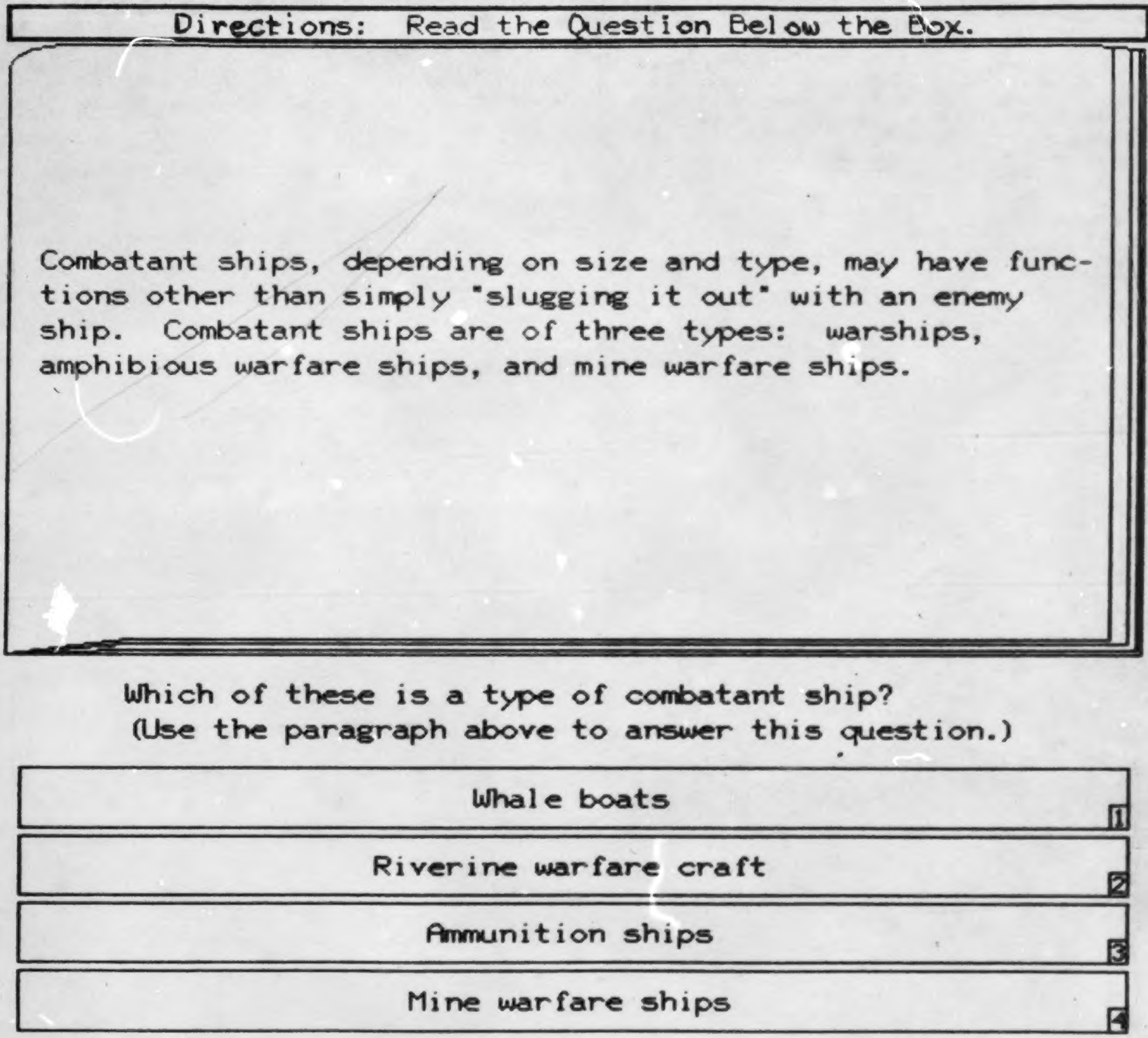
Which of the following prohibit giving the enemy information? (Use the paragraph above to answer this question.)

UCMJ 1

Navy Regulations 2

Security Manual 3

All of the above 4



Directions: Read the Question Below the Box.

Combatant ships, depending on size and type, may have functions other than simply "slugging it out" with an enemy ship. Combatant ships are of three types: warships, amphibious warfare ships, and mine warfare ships.

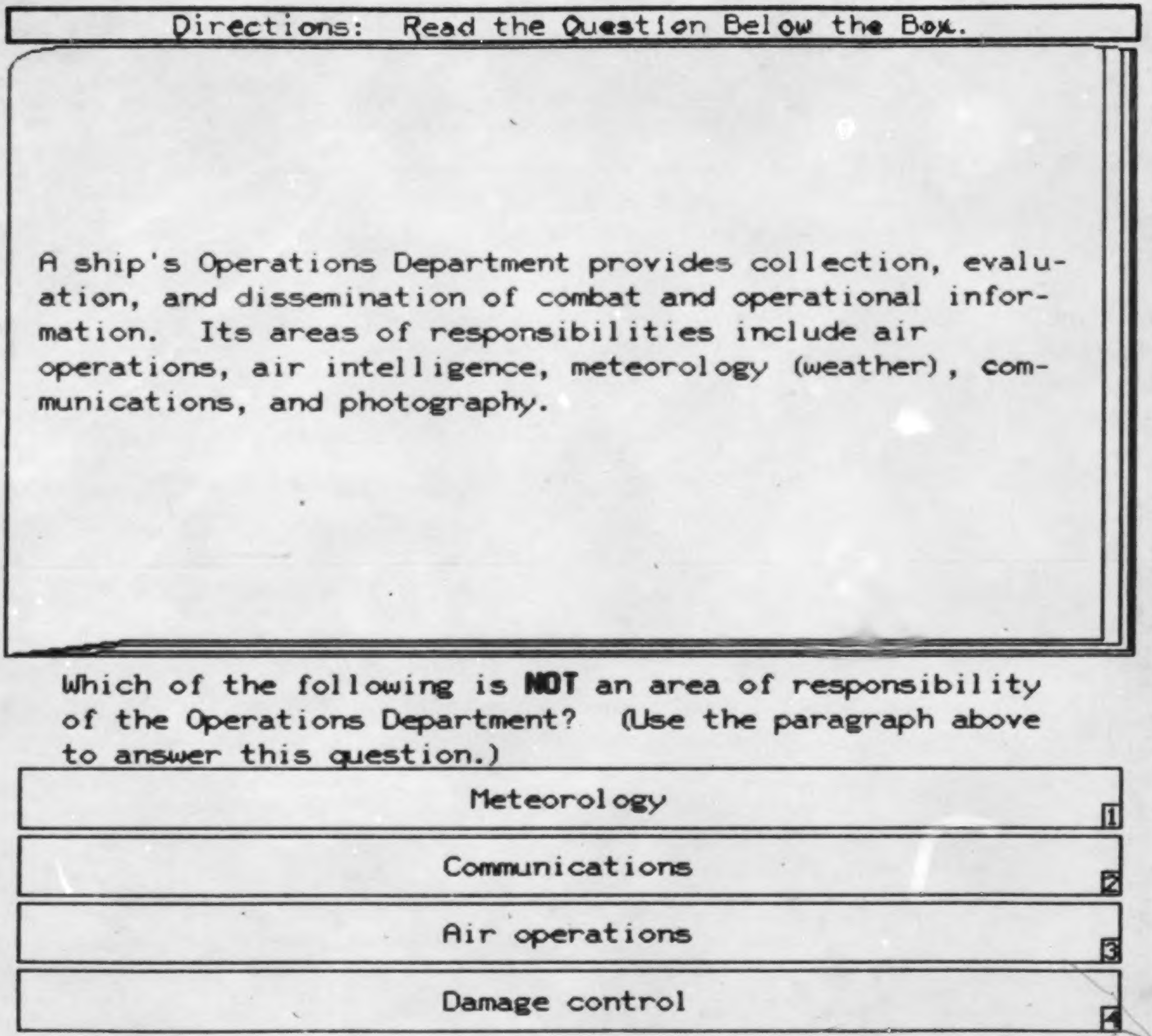
Which of these is a type of combatant ship?
(Use the paragraph above to answer this question.)

Whale boats 1

Riverine warfare craft 2

Ammunition ships 3

Mine warfare ships 4



Directions: Read the Question Below the Box.

A ship's Operations Department provides collection, evaluation, and dissemination of combat and operational information. Its areas of responsibilities include air operations, air intelligence, meteorology (weather), communications, and photography.

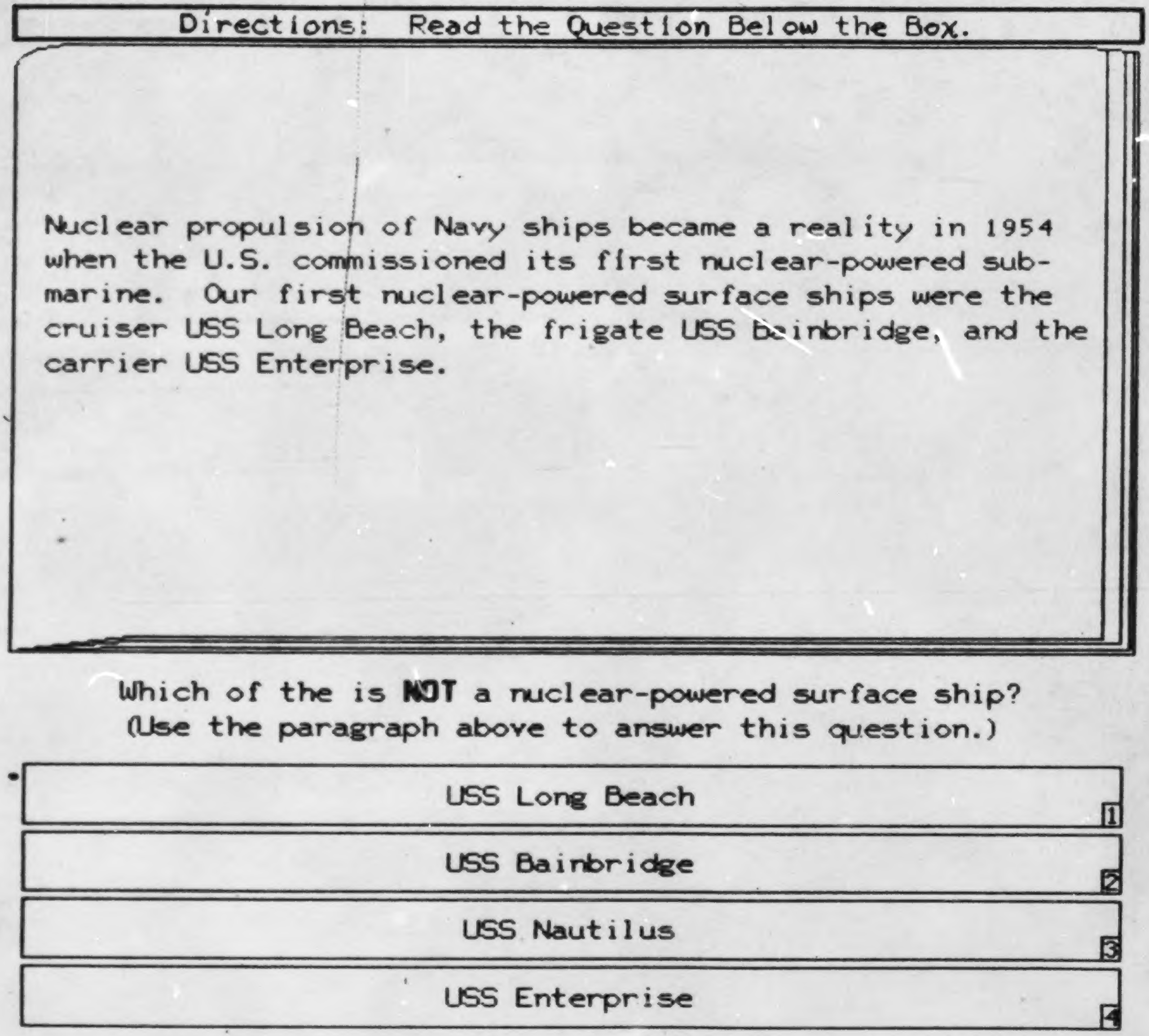
Which of the following is **NOT** an area of responsibility of the Operations Department? (Use the paragraph above to answer this question.)

Meteorology 1

Communications 2

Air operations 3

Damage control 4



Directions: Read the Question Below the Box.

Nuclear propulsion of Navy ships became a reality in 1954 when the U.S. commissioned its first nuclear-powered submarine. Our first nuclear-powered surface ships were the cruiser USS Long Beach, the frigate USS Bainbridge, and the carrier USS Enterprise.

Which of the is **NOT** a nuclear-powered surface ship?
(Use the paragraph above to answer this question.)

USS Long Beach 1

USS Bainbridge 2

USS Nautilus 3

USS Enterprise 4

Directions: Read the Question Below the Box.

Painting and preservation is a basic military subject which must be learned by all hands. Primary reasons for painting in the Navy are to protect metal surfaces from rust and corrosion, to seal pores of wood and steel, and to stop decay and rust formation.

Which of the following is **NOT** a primary reason for painting in the Navy? (Use the paragraph above to answer this question.)

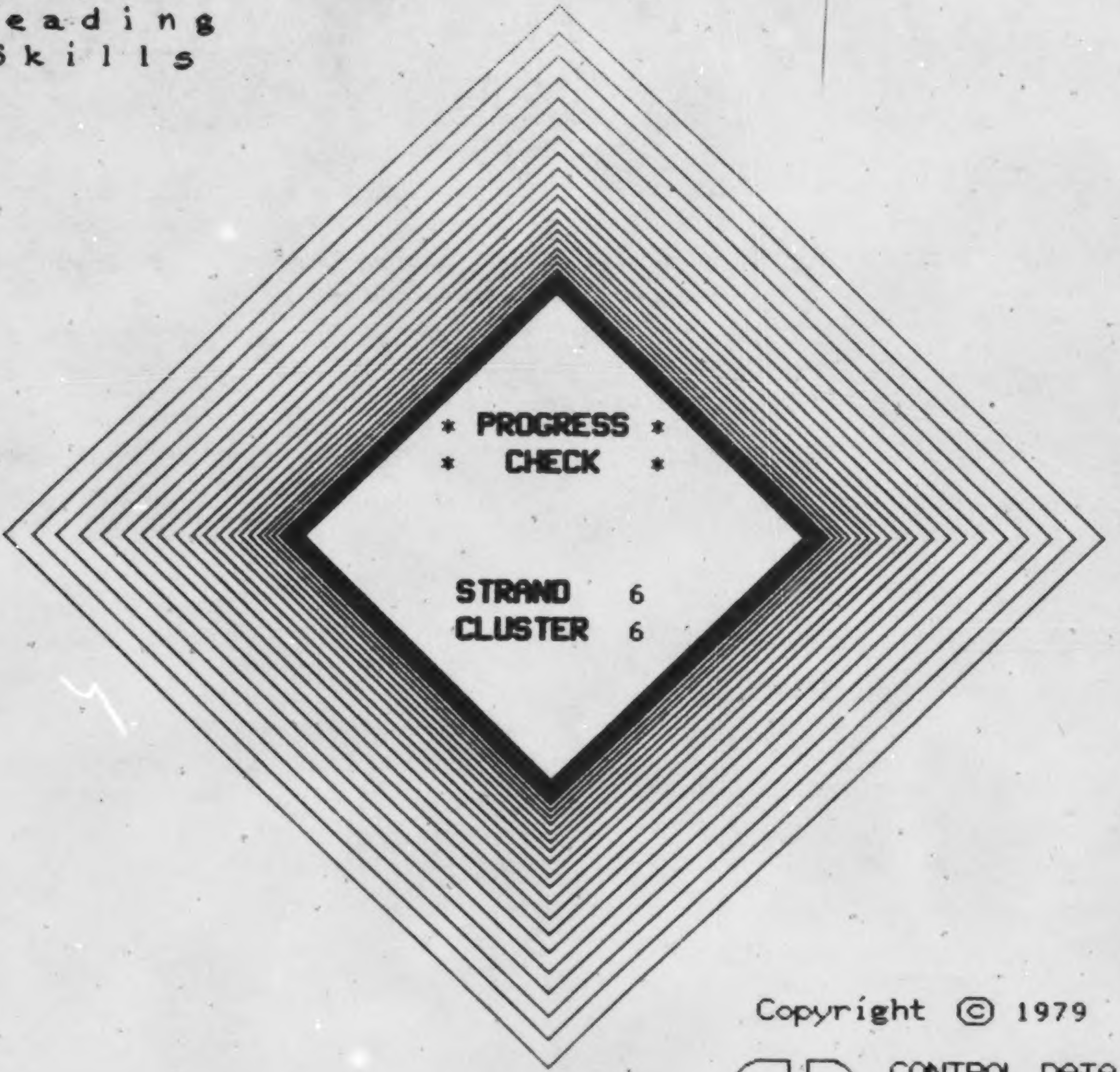
To protect metal surfaces from rust and corrosion 1

To seal pores of wood and steel 2

To stop decay and rust formation 3

To increase the attractiveness of an area 4

Basic
Reading
Skills



* PROGRESS *
* CHECK *

STRAND 6
CLUSTER 6

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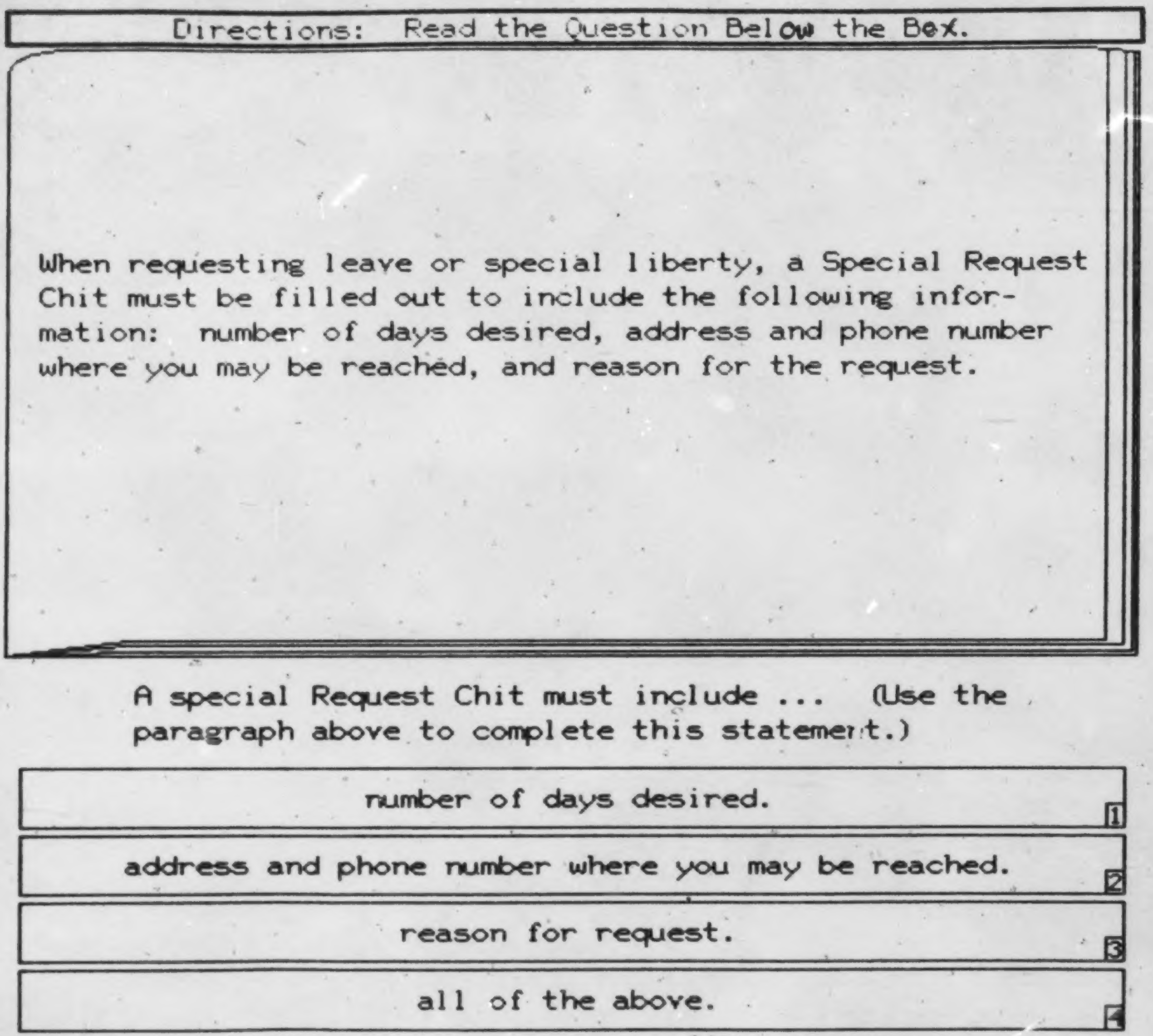
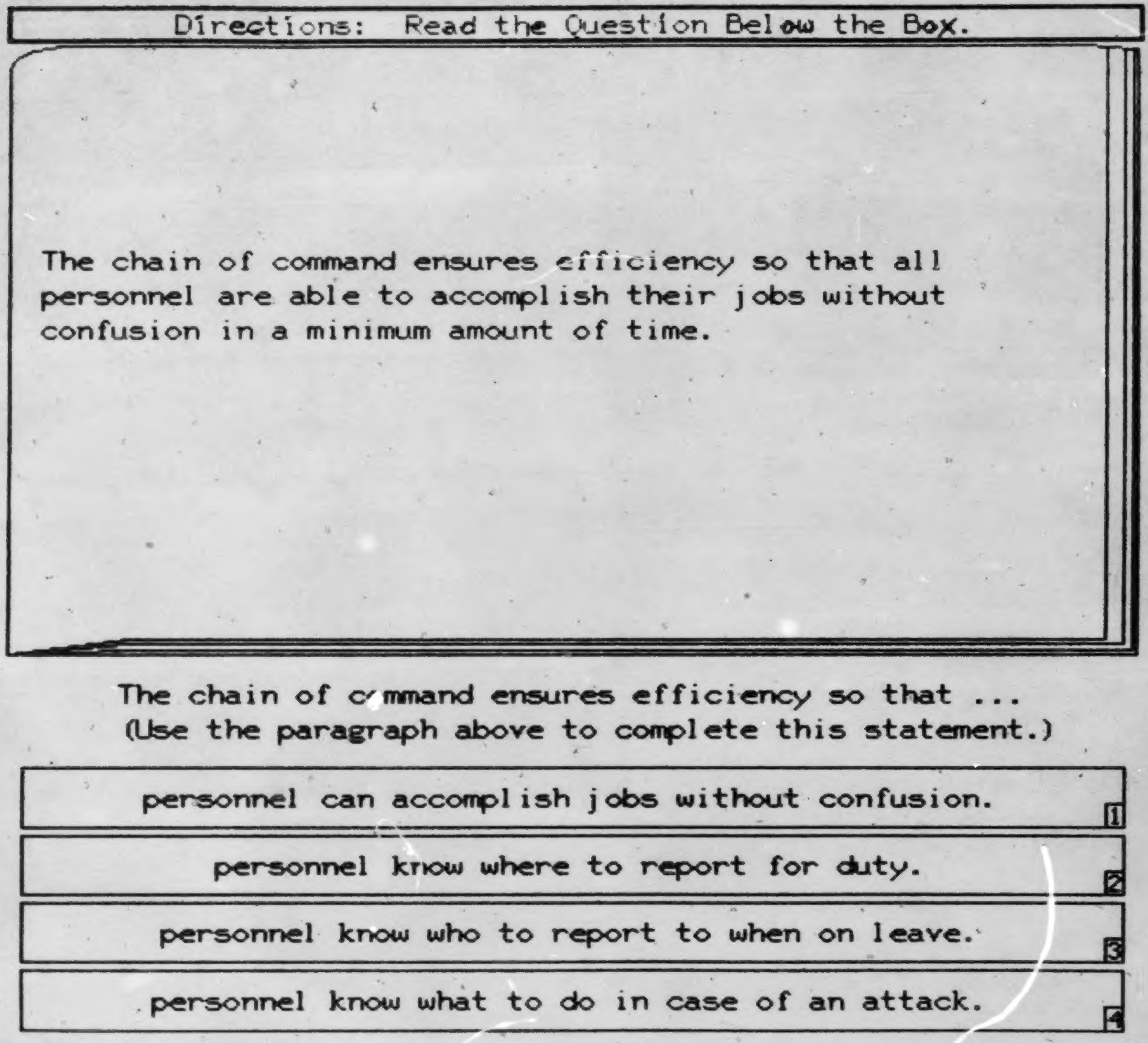


Directions: Read the Question Below the Box.

When requesting leave or special liberty, a Special Request Chit must be filled out to include the following information: number of days desired, address and phone number where you may be reached, and reason for the request.

A special Request Chit must include ... (Use the paragraph above to complete this statement.)

- number of days desired. 1
- address and phone number where you may be reached. 2
- reason for request. 3
- all of the above. 4



Directions: Read the Question Below the Box.

The chain of command ensures efficiency so that all personnel are able to accomplish their jobs without confusion in a minimum amount of time.

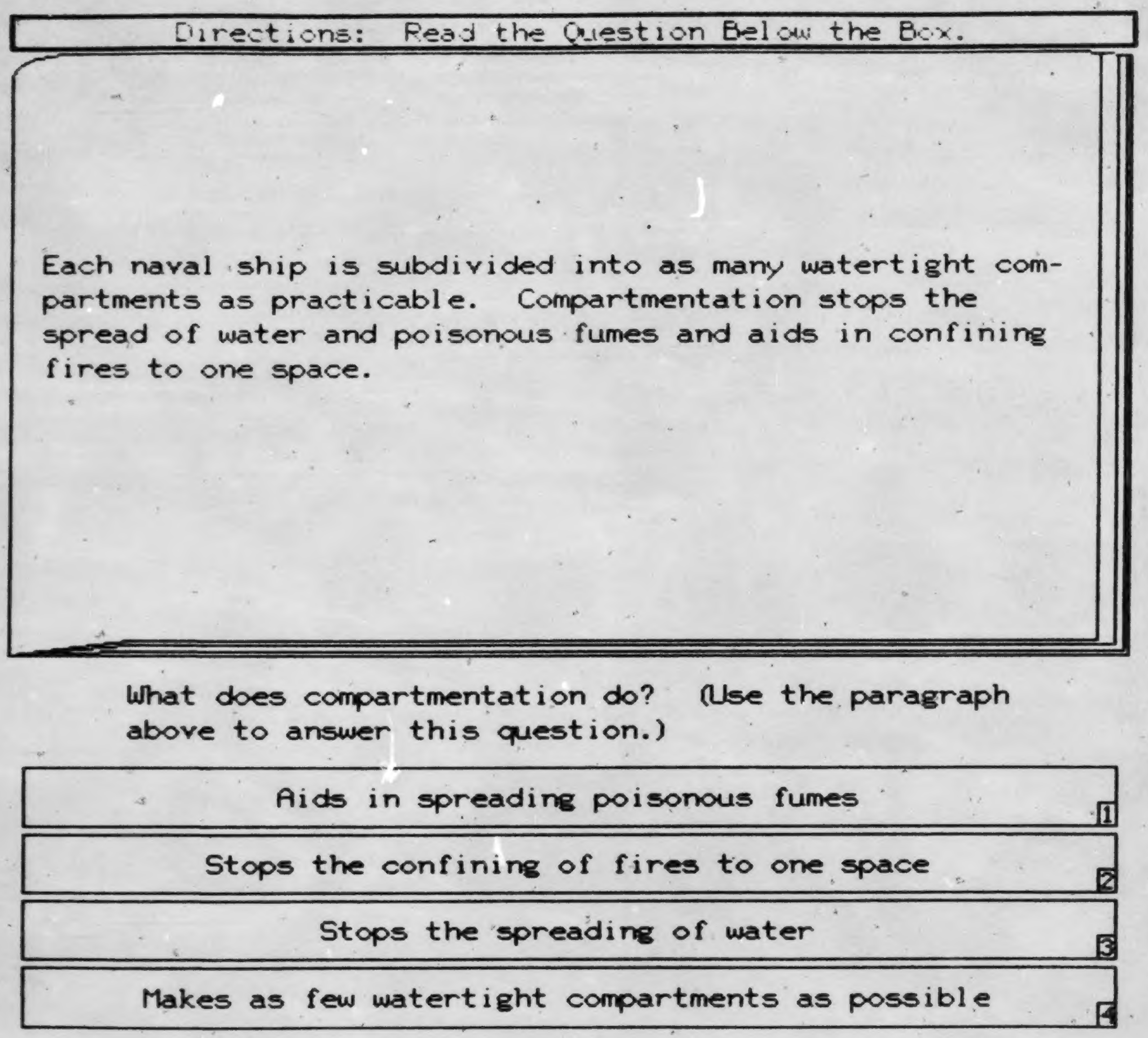
The chain of command ensures efficiency so that ...
(Use the paragraph above to complete this statement.)

personnel can accomplish jobs without confusion. 1

personnel know where to report for duty. 2

personnel know who to report to when on leave. 3

personnel know what to do in case of an attack. 4



Directions: Read the Question Below the Box.

Each naval ship is subdivided into as many watertight compartments as practicable. Compartmentation stops the spread of water and poisonous fumes and aids in confining fires to one space.

What does compartmentation do? (Use the paragraph above to answer this question.)

Aids in spreading poisonous fumes 1

Stops the confining of fires to one space 2

Stops the spreading of water 3

Makes as few watertight compartments as possible 4

Directions: Read the Question Below the Box.

A commanding officer may authorize warrant officers, petty officers, or noncommissioned officers to order enlisted members of his/her command or subject to his/her authority into arrest or confinement.

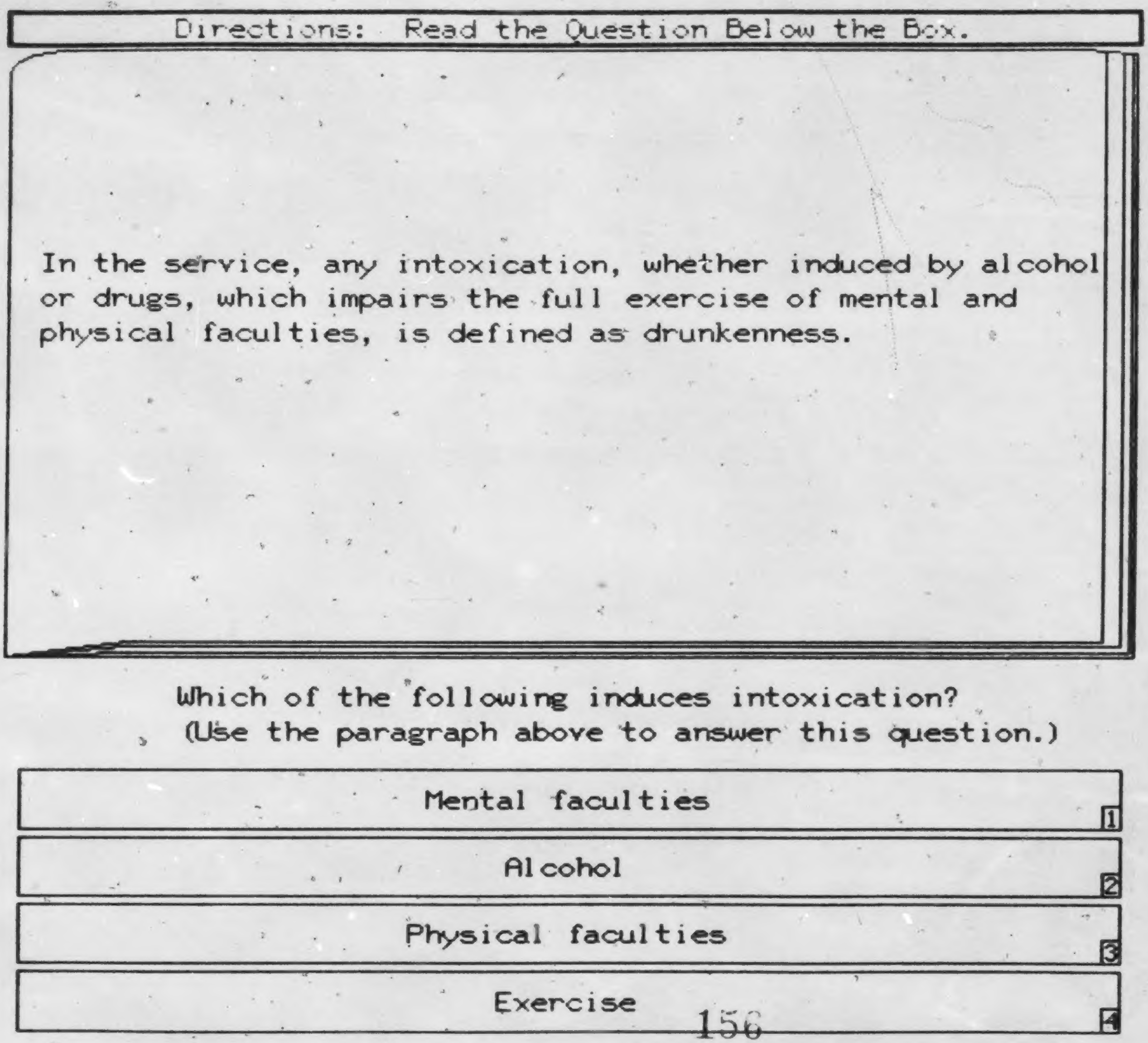
Who may order enlisted members into arrest or confinement? (Use the paragraph above to answer this question.)

Seaman recruits 1

Warrant officers 2

Petty officers 3

Both 2 and 3 4



Directions: Read the Question Below the Box.

In the service, any intoxication, whether induced by alcohol or drugs, which impairs the full exercise of mental and physical faculties, is defined as drunkenness.

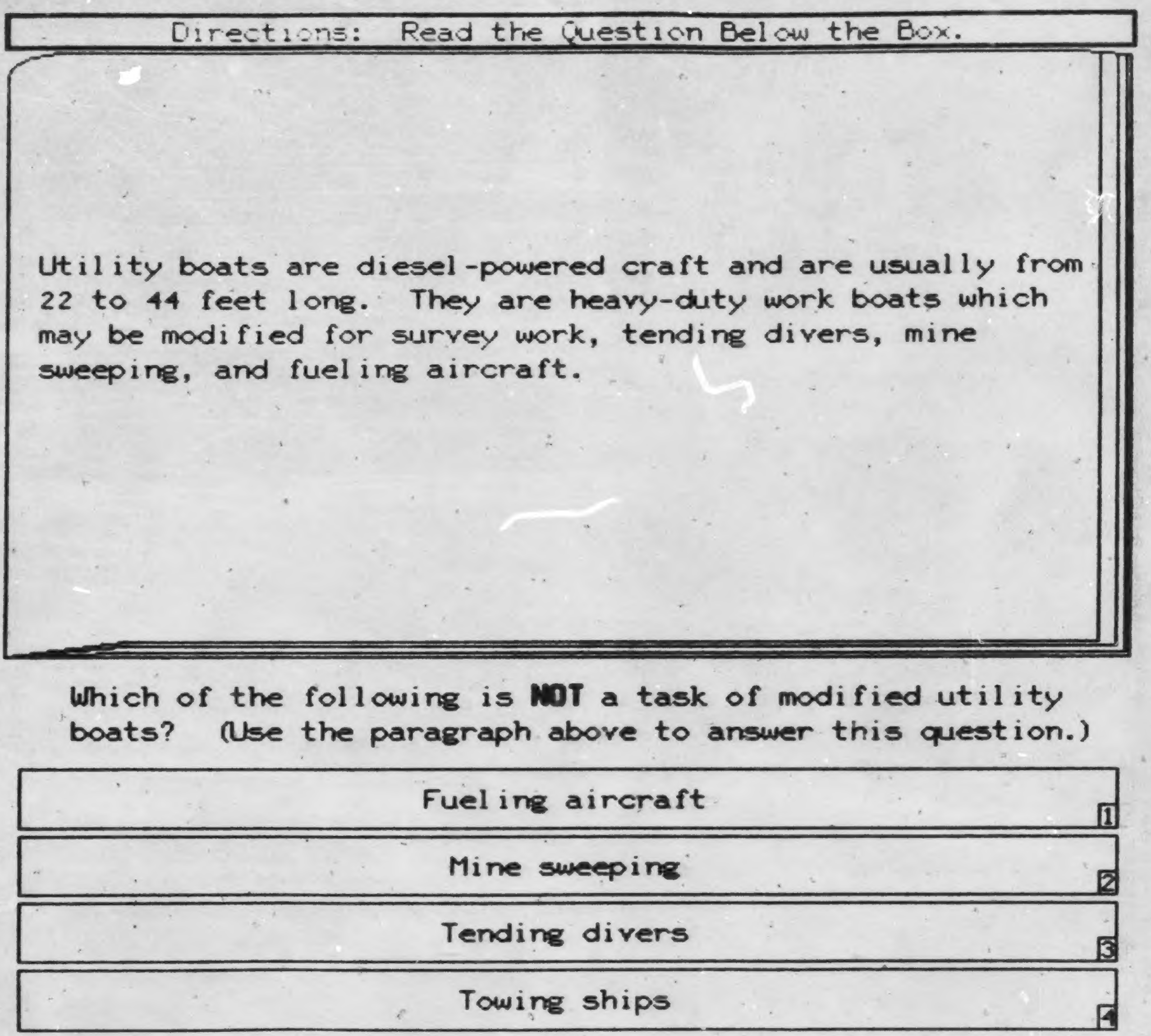
Which of the following induces intoxication?
(Use the paragraph above to answer this question.)

Mental faculties 1

Alcohol 2

Physical faculties 3

Exercise 4



Directions: Read the Question Below the Box.

Utility boats are diesel-powered craft and are usually from 22 to 44 feet long. They are heavy-duty work boats which may be modified for survey work, tending divers, mine sweeping, and fueling aircraft.

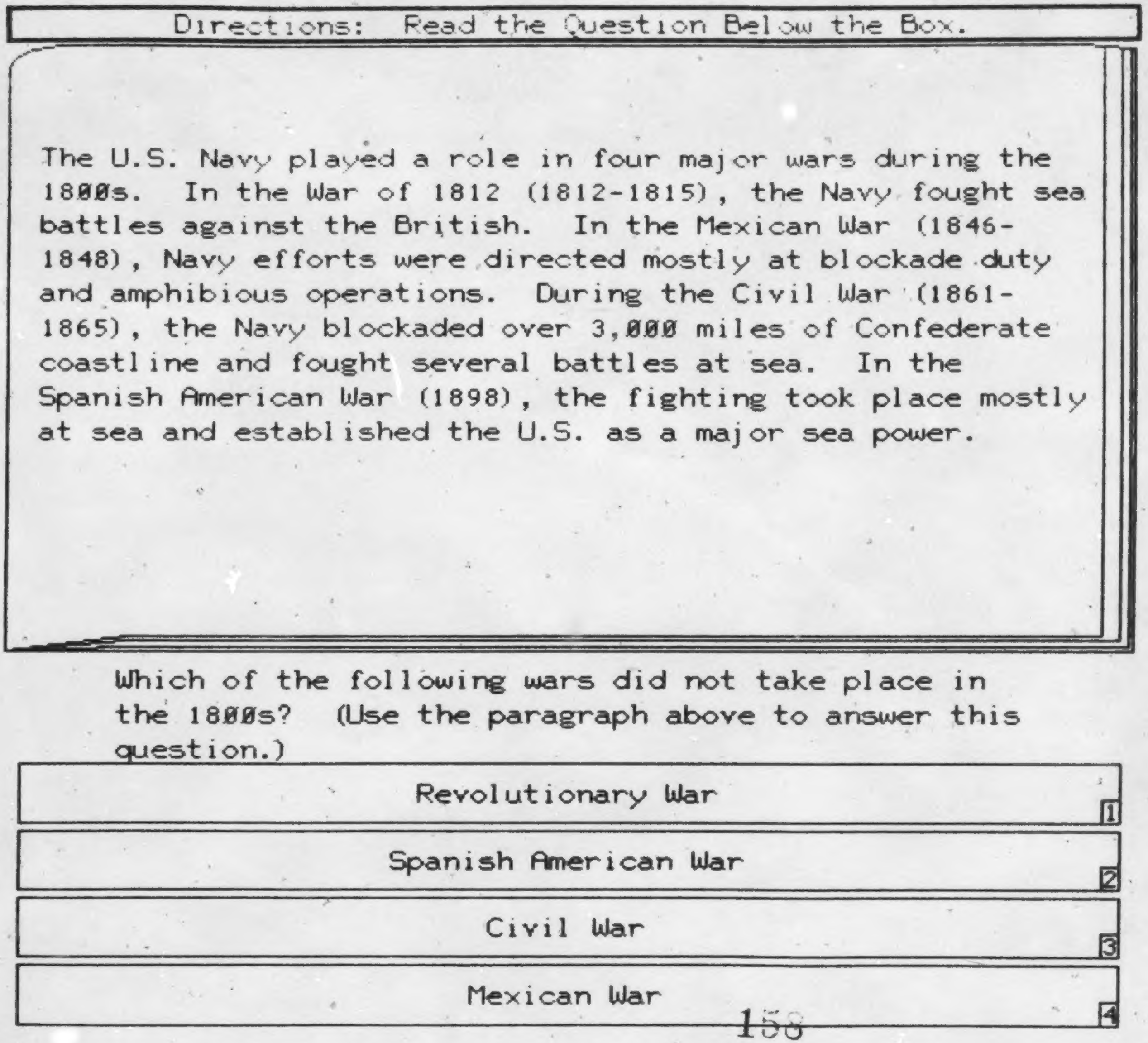
Which of the following is **NOT** a task of modified utility boats? (Use the paragraph above to answer this question.)

Fueling aircraft 1

Mine sweeping 2

Tending divers 3

Towing ships 4



Directions: Read the Question Below the Box.

The U.S. Navy played a role in four major wars during the 1800s. In the War of 1812 (1812-1815), the Navy fought sea battles against the British. In the Mexican War (1846-1848), Navy efforts were directed mostly at blockade duty and amphibious operations. During the Civil War (1861-1865), the Navy blockaded over 3,000 miles of Confederate coastline and fought several battles at sea. In the Spanish American War (1898), the fighting took place mostly at sea and established the U.S. as a major sea power.

Which of the following wars did not take place in the 1800s? (Use the paragraph above to answer this question.)

Revolutionary War 1

Spanish American War 2

Civil War 3

Mexican War 4

APPENDIX K

Sample Study Skills Application Activity

Cluster 3
STUDY SKILLS

APPLICATION ACTIVITY

Think about the notetaking techniques that you just learned on the computer. Use those techniques or make up some of your own to take notes on the following paragraphs. REMEMBER: You notes should be clear and easy to read.

Show your instructor the notes you take on paragraph 1 before you begin paragraph 2. Your instructor may have some useful suggestions.

1. An award is any decoration, medal, badge, ribbon, or letter of commendation bestowed on an individual or unit in recognition of outstanding acts or service performed. A military decoration is a kind of award

2. Several types of duty in the Navy are considered to be of such a hazardous nature that extra pay is given to the personnel performing these duties. It is called "incentive pay" and it's given for the performance of hazardous duty, such as aerial flight, submarine duty, parachure jumping, flight deck operations, contact with lepers, explosives demolition, and experimental stress duty. Qualified divers also receive extra pay; therefore, they cannot also receive incentive pay.

APPENDIX L

TIPS FOR GOOD STUDY SKILLS

I. Listening

A. Prepare for listening, get acquainted with material in advance
  1. Get lecture title, objectives, and reading assignment from EPO
  2. Copy this information into your notebook.
  3. Look over the objectives and the reading assignment to figure out:
    a. what you'll probably need to know
    b. what you already know

B. When you enter class, if you haven't already done it, copy down the title of the lecture, the objectives, and the reading assignment

  1. Use the objectives as a guide to the main points of the lecture.
  2. Pay special attention when:
    a. the instructor repeats some information
    b. the instructor asks a recruit to repeat some information
  3. Listen for key signal words, like:
    a. "This is important."..."
    b. "Write this down."
    c. "Another point is..."
    d. "The next topic will be..."

II. Notetaking

A. Keep a separate notebook for each test.

  1. Date every lecture and place title at top of the page.
  2. Be sure you have the enabling objectives and reading assignment for each lecture.

B. Search for the main idea

  1. Use a star or underlining or some other mark so you can easily see the main ideas.

C. Leave enough space between different items in your notes so that they will be easy to read.

  1. Skip a space or two between items.
  2. Don't make everything you write start out at the left-hand margin.
  3. Use symbols and/or numbers to show examples, definitions, characteristics
  4. Make up your own system, but be sure you make it easy to see the different kinds of information that you have written down.

D. DO NOT WRITE EVERY WORD THE INSTRUCTOR SAYS. Write down key word

  1. Write down key words and phrases.
  2. Use abbreviations and/or symbols for words that are used over and over.

E. Go over your notes the evening of the lecture.

  1. Fill in any information that you missed.
  2. Reorganize your notes to make them easier to read.

TIPS FOR GOOD STUDY SKILLS(cont.)

III. Studying

A. Study each day.

1. Go over in the evening those materials you have had during the day.
2. Mark main points in your notes and reading assignments.

B. Review often.

1. At least once every few days, go over all the notes and reading assignments which you will need for the next test.
2. Review both your personal notes and those passages in the reading assignments which you have marked as important or which have bold headings or other indications that they are important.

IV. Taking a Test

A. Read the directions carefully.

B. Plan your time so you can do as much as possible.

C. Read each question completely, but do not read too much into it.

D. Read all answers to the question before you make a choice.

E. Answer the easy questions first, then go back to the harder ones.

F. Guess if you need to. Only right answers will be counted. If you guess you have a chance of getting it right. If you leave it blank, you have no chance at all. You can usually eliminate one or two answers that are clearly wrong.

Mark those questions you guess. If you have time at the end, go back and try to figure out the best answer.

G. Watch out for qualifying words(like "usually, "sometimes", "some", and "most" and determining words that allow no exceptions (like "all", "always", "naver)

APPENDIX M

Prepilot Data Collection Form

PREPILOT DATA

Strand	Cluster	Item	Source	Comment	Response

APPENDIX N

NAVY RECRUIT ATTITUDE SURVEY

Name ______________________________

Date ______________________________

____

Answer these questions to tell how you feel about yourself, your educational experiences (in school and in the Navy), and your recruit training experiences. This is not a test. There are no right or wrong answers. Please answer the questions honestly. Your true opinions are important to us. You express your feelings toward the question as follows:

Read each sentence and decide how you can agree with it.

Let's do one for practice.

	Agree		Disagree	
The Navy offers a challenging career.	A	a	d	D

If you strongly agree with this statement, you will draw a circle around the "A" like this:	[✓ A]	a	d	D
If you just mildly agree with the statement, you will draw a circle around the "a" like this:	A	[✓ a]	d	D
If you mildly disagree with the statement, you will draw a circle around the "d" like this:	A	a	[✓ d]	D
If you strongly disagree with the statement, you will draw a circle around the "D" like this:	A	a	d	[✓ D]

Make sure that you answer all of the questions. Please read the sentences carefully. Do not spend a long time on any one question. Select the answer that seems best to you at the time.

If you do not understand any of the questions, please ask for help.

Before you begin, check to make sure that you've filled in the information at the top of this page.

NAVY RECRUIT ATTITUDE SURVEY

		Agree		Disagree	
1.	Overall, I am satisfied with recruit training.	A	a	d	D
2.	Education has always been boring - I can hardly wait until I'm finished.	A	a	d	D
3.	I would like to do better at the things I try.	A	a	d	D
4.	So far, my educational program has not been very good.	A	a	d	D
5.	I am willing to do extra work which isn't required in recruit training in order to get ahead in the Navy.	A	a	d	D
6.	I really enjoy a good challenge and competition.	A	a	d	D
7.	I probably work harder than most other people I work with in recruit training.	A	a	d	D
8.	It doesn't make much difference what a person tries to do - some folks are just lucky and others are not.	A	a	d	D
9.	When my chances of success in doing something new are only 50-50, I usually choose to do something else.	A	a	d	D
10.	I really wish that I could get away from this base.	A	a	d	D
11.	Recruit training is boring.	A	a	d	D
12.	When I finish something important to my future, I usually relax and am glad that I do not have to do the work again.	A	a	d	D
13.	It's important for me to know that I did a job well.	A	a	d	D

	Agree		Disagree	
14. My emotions affect my performance when I take tests.	A	a	d	D
15. For the most part, I like to do jobs well because I know that I will be praised for it.	A	a	d	D
16. When I try to get better at something, I usually compare myself to other people.	A	a	d	D
17. I feel that I can do something now about the problems that may come up in the future.	A	a	d	D
18. Much of what I learned in classes can be used in a job.	A	a	d	D
19. In general, I'd say that education is worthwhile.	A	a	d	D
20. Because of my training in the Navy, I'll have a good chance of getting a job in civilian life.	A	a	d	D
21. My educational experiences have not helped me to learn.	A	a	d	D
22. My days in recruit training really seem to drag.	A	a	d	D
23. If I don't succeed at something the first time, I usually just give up.	A	a	d	D
24. I feel that I have much to be proud of.	A	a	d	D
25. I compare myself to my previous achievements when I am trying to improve at something.	A	a	d	D

		Agree		Disagree	
26.	When I was in school, it never really mattered to me how I did on tests.	A	a	d	D
27.	Formal education doesn't help you with your job.	A	a	d	D
28.	It is very important for me to make a good record during recruit training.	A	a	d	D
29.	There was a great deal taught at my schools and training classes that is useful to me as a person.	A	a	d	D
30.	When I don't succeed at something, I think of reasons why and I try doing it again.	A	a	d	D
31.	I am able to do things as well as most other people.	A	a	d	D
32.	I would like to have more people pay attention to my point of view.	A	a	d	D
33.	The skills that I learn in recruit training will help me in my civilian work.	A	a	d	D
34.	My formal education has done enough to prepare me for the life I'll lead in the future.	A	a	d	D
35.	A lot of things in recruit training are not needed to make good sailors.	A	a	d	D

APPENDIX O

Third Party Evaluation Plan

EVALUATION PLAN

Project PREST

Performance Related Enabling Skills Training

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Purpose

To describe the plan for assessing the cost-effectiveness of a computer-assisted instruction (CAI) approach to the Academic Remedial Training (ART) program. This plan supersedes the "Evaluation Plan for CAI in Academic Remedial Training" submitted to the Chief of Naval Education and Training (N-5) on 10 May 1978.

Overview

The evaluation of the effectiveness is divided into two phases. The first phase, Immediate Impact, assess the effect of instruction at course completion. This evaluation phase takes into account traditional measures of reading improvement, i.e. reading grade level (RGL), as well as a measure of reading skills vis-a-vis the reading demands of recruit training. How well a recruit fares on the academic tests administered during recruit training, as well as whether or not the recruit attrites will be included in this phase.

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The second evaluation phase, Prolonged Benefit, assesses the enduring effects of the basic skills program on the early stages of a Navy career. The adequacy of an enlistee's on-the-job performance, especially as a function of reading demands, will be evaluated 6 months after recruit training.

Approach

Those recruits designated for ART will have been tested on two forms of the Gates-MaGinitie (GM) reading test, Survey D, and have scored between a 3.0 and 6.0 RGL. At least 60 recruits, preferably 80, will participate in the CAI project. An equal number will be represented in a control sample, which will be run prior to the CAI group. The control group will participate in the classroom version of the ART program. All participants must be native English speakers. Pre tests will be administered by the second day of enrollment in ART. Post tests will be given on the final day of ART enrollment.

One-half of each group will have entering RGL's of between 5.0 and 6.0 on the GM test, the remainder will have entering RGL's below 5.0. Dividing the groups in this way will permit an aptitude-treatment interaction to be tested. The entering RGL will be based on the average of the two GM tests. The students scores on the Armed Services Vocational Aptitude Battery (ASVAB) will be collected, as well as background data on previous remedial reading experiences and whether or not the subject is a high school graduate. This data will be used in judging what type of

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student responds best to a particular delivery mode. The degree to which success in CAI can be predicted from a set of input variables will be useful should the CAI system be implemented on a limited basis.

The Stanford Diagnostic Reading Test (SDRT), Level 2 will be administered to all participants upon entry. The SDRT provides normative measures of literal and inferential comprehension, vocabulary, syllabication, sound discrimination, blending, and rate. A second form is available for post-testing. The differences will allow the strengths of each program to be evaluated in greater detail. For example, the CAI mode might be most effective for instruction in vocabulary or comprehension, and especially for those with entering RGL's above 5.0.

Since the ART program is designed to assist the recruit in successfully completing the academic portion of recruit training, a functional test which measures the reading skills related to this academic portion will be given. The functional test requires the recruit to use recruit manuals in answering questions similar to those asked on the recruit academic tests. Questions that require searching for information from text, tables, and figures will also appear. A pre and a post test will be given.

Summary of Evaluation Criteria

Immediate Impact

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Gain in reading ability as measured by the recruit-functional reading test.

Gain in RGL as measured by SDRT.

Performance on recruit academic tests.

Liklihood of completing recruit training.

Prolonged Benefit

Professional performance during first 6 months of initial duty assignment.

Liklikood of completing first 6 months of initial duty assignment.

Cost Considerations

Cost data for the PLATO hardware, curriculum usage charge, maintenance, and phone communication costs will be obtained from the Program Manager for Government Systems Marketing, Control Data Corporation. Both lease options and outright purchase will be considered. The cost analysis will be made for a total CAI configuration for the ART schoolhouse, assuming a student load of the average number on board. The extent to which a human monitor is needed during CAI delivery will be included as a cost (military pay grade E-4). It will be necessary to project how many monitor(s) would be needed in a total CAI configuration. Mili-

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tary costs will be obtained from the Chief of Naval Education and Training, Code N-623 (Specialized Training Costs).

A critical component of the evaluation is the specification of the number of instructional days needed in order to achieve an RGL of 6.0 or higher. The current ART program has this property, although some students, at the discretion of the staff, remain in the program for several more days. Since the CAI group will be tested on a different set of items, it will be necessary to norm these items and determine what constitutes a 6.0 RGL. These items will be normed on ART students who have achieved a 6.0 RGL. (Members of the control group might be included in this sample). When a CAI student has achieved a 6.0, he will also be given the same number of "extra days" that are typically granted to the control student.

Summary of Cost Data

Total CAI cost - hardware, usage fee, maintenance, communications
Total off-line costs -e.g. cassette recorder, if applicable
Cost for human monitor(s)
Instructional days to achievement criterion
Recurring overhead costs (workbooks, paper, etc.)

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APPENDIX P

The Development of the Navy Recruit Attitude Scale (NRAS)

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October 11, 1979

It can be hypothesized that Navy recruit attitudes, motivation, and self perceptions may have considerable effects upon academic learning and subsequent performance. In order to determine the relationship between attitudes and learning in the ART, RBS has developed an assessment instrument to be administered to PREST and control group recruits on a pre-post basis as part of the PREST evaluation effort. The assessment of attitudinal change may be valuable in further exploring the nature of ART learning and can indicate possible side effects of the instruction which is delivered.

The Navy Recruit Attitude Survey (NRAS) is a thirty-five item, Likert-type instrument utilizing a four point scale. Most items were adapted from previous assessment instruments. The NRAS should be considered as an experimental measure since it has not yet been pilot tested.

The NRAS contains three subscales, as follows:

A) recruit motivation (17 items)

B) morale and job satisfaction (10 items)

C) general attitude toward learning (8 items).

The relationship of specific items to subscales is described in Table 1.

Table 1

Composition of NRAS Subscales

Subscale	Item Numbers
A. Recruit Motivation	3, 6, 8, 9, 12, 13, 14, 15, 16, 17, 23, 24, 25, 26, 30, 31, 32
B. Morale and Job Satisfaction	1, 5, 7, 10, 11, 20, 22, 28, 33, 35
C. General Attitude Toward Learning	2, 4, 18, 19, 21, 27, 29, 34

The order of presentation of these items was determined by random assignment using a random number table. Efforts were made to balance the number of items with positive and negative valences to reduce the effects of social desirability and fixed response patterns.

Items for the motivation subscale were based on a model of achievement motivation developed by Veroff, McClelland, and Marquis (1971) at the Survey Research Center at the University of Michigan. Several items were adapted from examples given in their report. Dimensions of the model which were selected for the NRAS include the following:

1.) risk orientation (2 items)
2.) future orientation (2 items)
3.) interest in social comparison (2 items)
4.) self-blame for failure (2 items)
5.) concern about social approval for achievement (2 items)
6.) self esteem about achievement, personal efficacy, and competence orientation (3 items)
7.) salience of achievement for self (2 items)
8.) self reported test anxiety (2 items).

Several studies have examined motivation within a military context (Drucker, 1974; Motowildo, Dowell, Hopp, Borman, Johnson, and Dunnette, 1976; Twery, Schmid, and Wrigley, 1958). Others have looked at motivation within the private sector employment context (e.g., Patchen, 1965). Typically these studies view motivation in terms of morale and/or job satisfaction. The NRAS includes adaptations of a few items from each of the above scales. These adapted items comprise the morale and job satisfaction subscale.

Many studies and instruments conceptualize motivation in terms of personality characteristics, interests, and personal needs (e.g. Cattell and Horn, 1964). However, these tests have been negatively reviewed in the literature (Hoepfner, et al., 1974) and do not appear to be relevant to the present study.

RBS has examined the development of student attitudes in the evaluation of Experience-Based Career Education (Kershner and Blair, 1975; Biester, 1976). RBS developed an effective measure of learning-related attitudes, the Student Attitude Survey (Blair and Kershner, 1976). The NRAS includes items adapted from this instrument; they comprise the general attitude toward learning subscale.

The actual sources for the NRAS item sources are described below in Table 2.

Table II

NRAS Item Sources

Item	Subscale	Source for Adaptation
1	Morale and Job Satisfaction (MJS)	Job Satisfaction Inventory (JSI, Twery)
2	General Attitude toward Learning (LRN)	Student Attitude Survey (SAS, RBS)
3	Recruit Motivation (MOT)	Veroff's Model (VER)
4	LRN	SAS
5	MJS	Job Motivation Index (SMI, Patcher)
6	MOT	VER
7	MJS	JMI
8	MOT	VER
9	MOT	VER
10	MJS	JSI
11	MJS	JSI
12	MOT	VER
13	MOT	VER
14	MOT	VER
15	MOT	VER
16	MOT	VER
17	MOT	VER
18	LRN	SAS
19	LRN	SAS

Table II (continued)

20	MJS	Troop Attitude Survey (TAS, Drucker)
21	LRN	SAS
22	MJS	JMI
23	MOT	VER
24	MOT	VER
25	MOT	VER
26	MOT	VER
27	LRN	SAS
28	MJS	TAS
29	LRN	SAS
30	MOT	VER
31	MOT	VER
32	MOT	VER
33	MJS	TAS
34	LRN	SAS
35	MJS	TAS

Scores for the NRAS are reported for each subscale. Subscale scores are computed by taking item means for the subscale. Thus, subscale scores can range from 1.00 (Low/Negative) to 4.00(High/Positive).

Assessment of the instruments' reliability and other psychometric characteristics will be prepared as data is received. Interpretation of results, at present, should be made with caution.

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